

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 n 9

1. Edition

En

PES 6 A 90 D 410 RS 2293 RQV 300-1425 AB 740-2L

supersedes

company:

engine:

Daimler-Benz

OM 352

96 kW (131 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	9,7-9,8	6,2 - 6,3	0,3(0,45)			
300	7,5-7,7	0,9 - 1,5	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	1
1	2	3	2a	4	5	6	4	7	8	9	10	11
max.	1470	15,2-17,8		-	-	-		ca. 14	100	min. 9,1	250	0,7-1,0
ca. 59	8,7	1455-1465							300	7,5-7,7	640	3,2-3,5
	4,0	1550-1580							875	max. 1,0	1035	5,5-5,7
	1700	0 - 1,0						370-520			1425	8,1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	2b	4a	5a	6	8
1400	61,5 - 62,5 (59,5 - 64,5)	1455-1465*	-	-	100 71,0 - 81,0 para 13,9-14,8 mm RW	- - -

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
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① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 u 6

1. Edition

En

PES 6 A 90 D 410 RS 2569 RQV 300-1400 AB 1111-2L

supersedes
company
engine OM 352
88 kW (120 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,25-2,35}{(2,20-2,40)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	9,8-9,9	5,5 - 5,6	0,3(0,45)			
	8,2-8,4	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		1
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3
max.	1400	15,2-17,8	-	-	-	-	approx.	100	min. 9,8	250	0,7-0,9
approx.	8,8	1440-1450	28	300	8,2-8,4	28	28	300	8,2-8,4	630	3,7-3,8
62	4,0	1530-1560	•	550-610 = 2,0	550-610 = 2,0	•	•	550-610 = 2,0	1020	1020	5,3-5,4
	1630	0 - 1,0							1400	1400	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point	Torque-control travel		
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1400	54,5-55,5 (52,5-57,5)	1440-1450*	500	46,5-49,5 (44,5-51,5)	100	73,0-83,0 at 14,8- 15,2 mm RW	1400 500 630 1000	9,8+0,1 11,0+0,1 10,8+0,2 10,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 3,8 n 9

1. Edition

En

PES 4 A 90 D 410 RS 2570

RQV 300-1400 AB 1111-3L

supersedes
company Daimler-Benz
engine OM 314
57 kW (77 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke
(2,25-2,35)
(2,20-2,40) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	10,5+0,1	5,9 - 6,0	0,3(0,45)			
	8,3-8,5	0,9 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	approx. 24	100 300	min.10,0 8,3-8,5	250 630	0,7-0,9 4,8-4,9
approx. 63	9,5 4,0 1650	1440-1450 1535-1565 0 - 1,0					545-605 = 2,0		1020 1400	5,3-5,4 7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 4a		Fuel delivery characteristics high idle speed 5b		Starting fuel delivery idle switching point 6		Torque-control travel Control rod travel rev/min 5	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	rev/min 5	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	rev/min 9
1400	59,0-60,0 (57,0-62,0)	1440-1450*	400	44,0-46,0 (42,0-48,0)	100	71,0-81,0	1400 400 600 1000	10,5+0,1 11,5+0,1 11,1+0,2 10,8+0,3	

Checking values in brackets

* 1 mm less control rod travel than col. 2

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 v 1

3. Edition

En

supersedes 1.80

company: Daimler-Benz
engine: OM 352 A

Testoil-ISO 4113

PES6A90D410RS2571

RQV300-1400AB884L

1 - 5 - 3 - 6 - 2 - 4
0 - 60-120-180-240-300 $\pm 0,50$ (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,00-2,10
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	12,2	6,8 - 6,9	0,3(0,45)			
300	+0,1 6,4-6,6	0,8 - 1,4	0,2(0,4)			
600	- - -	C, 4-5	0,4(0,55)			

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Sliding sleeve travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1400	15,2-17,8	-	-	-	approx.	100	min.8,0		
						11	300	6,4-6,6		
approx.	11,2 54	1440-1450 3,4 1575-1605 1750	1440-1450 3,4 1575-1605 0 - 1,0				1100	max.1,0		
							580-640	= 2,0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	rev/min
1	2	3	4	5	6	8
1400	68,0 - 69,0 (66,0 - 71,0)	1440-1450*	600	53,0 - 55,0 (51,0 - 57,0)	100	73,0-83,0
						100-220(80-240)

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 e 1
2. Edition

En

PES 6 A 80 D 410 RS 2085 Y RQV 300-1475 AB 533 DL

supersedes 6.82
company Daimler-Benz
engine: OM 352

Testo ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1450	8,2-8,3	4,6 - 4,7	0,2(0,35)			
300	7,3-7,5	1,0 - 1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	5	6	4	7	8	10	11
max.	1500	15,2-17,8	-	-	-	approx.	100	min.7,5	250	0,8-1,1
approx.	7,2	1505-1515				14	300	5,9-6,9	660	3,4-3,8
57	4,0	1545-1575					330-450		1060	5,3-5,5
	1700	0 - 1,0				3a			1475	8,3

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	rev/min
1450	46,0-47,0 (44,5-48,5)	1505-1515*	800	45,5-47,5 (44,0-49,0)	100 71,5-81,5 bei 12,9-13,3 mm RW	1450 8,2-8,3 9,2-9,3 800 8,9-9,1 1200 8,4-8,7

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

BOSCH

Geschäftsbericht KH Kundendienst Kfz-Ausstattung
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① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 x 2

2. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 300-1400 AB 880 DL

supersedes 6.82
company: Daimler-Benz
engine: OM 352
88 kW (120 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1380	9,7-9,8	6,0 - 6,1	0,3(0,45)			
300	7,6-7,8	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1	
1	2	3	2a	4	5	6	7	8	9	3	10	11
max.	1430	15,2-17,8		-	-	-	approx.	100	min.9,2	250	0,9-1,1	
approx. 59	8,7 4,0 1650	1420-1430 1510-1540 0 - 1,0					14	300	7,6-7,8	630 1020 1400	3,2-3,6 5,6-5,8 8,2	
							375-525					

Torque control travel a = 0,65 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	rev/min
1	2	3	4	5	6	8
1380	59,5-60,5 (57,5-62,5)	-	600	48,0-51,0 (46,0-53,0)	100	13,8-14,2 mm RW
			1000	54,5-57,5 (52,5-59,5)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 w 1

2. Edition

En

PES 6 A 90 D 410 RS 2565

RQV 300-1400 AB 884 L.

supersedes 10.80

company: Daimler Benz

engine: OM 352

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,05-2,25)
2,10-2,20 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,1	6,1 - 6,2	0,3(0,45)			
	+ 0,1					
300	6,0-6,2	0,8 - 1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min Control rod travel mm 1	Control rod travel mm 2	Degree of deflection of control lever	rev/min Control rod travel mm 4	Control rod travel mm 5	Degree of deflection of control lever	rev/min Control rod travel mm 7	Control rod travel mm 8	rev/min Control rod travel mm 3	rev/min Control rod travel mm 10	mm 11
max.	1400	15,2-17,8				approx.	100	min.8,0			
approx.	10,1	1440-1450				13	300	6,0-6,2			
60	3,4	1575-1605				310-380	590-650=2,0				
	1750	0 - 1,0									

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	rev/min 8	Control rod travel mm 9
1400	61,0 - 62,0 (59,0 - 64,0)	1440-1450*	600	51,5-53,5 (49,5-55,5)	100	73,0-83,0 at 13,0 - 13,4 mm RW	
					100-220(80-240)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 3,8 g 3

1. Edition

En

PES 4 A 90 D 410 RS 2294

RQV 300-1425 AB 74Q-2 L

supersedes
company:
engine:

- Daimler-Benz
OM 314
62 kW (84 PS)
Unimog

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	9,7-9,8	6,3 - 6,4	0,3 (0,45)			
300	6,8-7,0	0,9 - 1,5	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed Degree of deflection of control lever Control rod travel mm	rev/min	Control rod travel mm	Intermediate rated speed			Degree of deflection of control lever Control rod travel mm	Lower rated speed			Sliding sleeve travel	
			1a	2a	4		5	6	3	10	11
max.	1425	16,0-19,4			-				approx. 100	min. 7,4	250 0,8-1,0
approx. 61	8,7 4,0 1650	1460-1470 1535-1565 0 - 1,0							300 750 370-520 (3a)	5,8-6,0 max. 1,0	640 3,2-3,5 1035 5,5-5,8 1425 8,1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2	rev/min	cm³/1000 strokes	Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed 5a 5b		Starting fuel delivery idle switching point		Torque-control travel	
			2b	4b	4	5	6	7	8	9
1400	1400	62,5-63,5 (60,5-65,5)	1460-1470*		-	-	100	13,7-14,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 3,8 g 2

2. Edition

En

Testoil-ISO 4113

PES 4 A 90 D 410 RS 2294

RQV 300-1425 AB 740 L.

superse~~82~~g 82
company Daimler-Benz
engine OM 314
62,5 kW (85 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,1 - 2,3) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	9,7-9,8	6,3 - 6,4	0,3(0,45)			
300	6,8-7,0	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in _____

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm
1	2	3	2a	4	5	6	7	8	9	10	11		
max.	1425	16,0-19,4		-	-	-	approx.	100	min.7,4	250	0,7-1,0		
approx. 61	8,7 4,0 1650	1460-1470 1535-1565 0 - 1,0					10	300	5,8-6,0	640	3,2-3,6		
							370-520	750	max.1,0	1030 1425	5,5-5,7 8,1		
							(3a)						

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	2b	4a	5a 5b	6	5
1	2	3	4	5	6	7
1400	62,5 - 63,5 (60,5 - 65,5)	1460-1470 *	-	-	100	13,7-14,3 mm RW

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 k 1

1. Edition

En

PES 5 A 95 D 410 LS 2543 Z RQV 250-1100 AB 1038 DL

1 - 3 - 5 - 4 - 2 je $72^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes*

company: MAN

engine: D 2565 M/MF
124 kW (168 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5-1,6
(1,45-1,65) mm (from BDC) 7 y 1. 5

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	10,6+0,1	9,3 - 9,5	0,3 (0,6)			
250	5,9-6,1	0,9 - 1,5	0,3 (0,5)			
1100	10,0+0,1	C, Sp. 4 u. 5	0,4			
500	10,7+0,2					

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed Degree of deflection of control lever	Control rod travel mm	Control rod travel rev/min	Intermediate rated speed			Degree of deflection of control lever	Control rod travel mm	Control rod travel rev/min	Lower rated speed		Sliding sleeve travel mm
			1a	2a	4				7	8	
max.	1140	14,4-17,6	-	-	-	approx.	100	min. 7,5	200	0,7-0,9	
approx 41	9,0	1140-1150					250	5,9-6,1	500	3,5-3,8	
	4,0	1165-1195					315-375 = 2,0		800	5,0-5,4	
	1300	0 - 1,0					450	max. 1,0	1100	7,7	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	control rod travel mm
700	92,5-94,5 (90,5-96,5)			1100	94,5-98,5 (92,5-100,5)	100	146,5-156,5	1100	10,0+0,1
				500	90,5-94,5 (88,5-96,5)			700	10,6+0,2
								500	10,7+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2
9.82

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 5,5c

3. Edition

En

PES 6 A 90 D 410 RS 2633

RQV 300-1500 AB 1152 L

supersedes 6.82

FIAT

company: 8060.04.661

engine 81 kW (110 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2-2,3
(2,15-2,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1500	2	3	0,3 (0,45)	2	3	6
	9,0-9,1	4,9-5,1				
300	8,2-8,4	1,1-1,7	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1525	15,2-17,8	-	-	-	approx 17	100	min. 9,0	250	1,1-1,3
approx. 59	8,0	1540-1550					300	8,2-8,4	670	4,5-4,8
	4,0	1635-1665					900	max. 1,0	1080	6,0-6,2
	1800	0 - 1,0					330-430		1500	8,3

Torque control travel = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	rev/min
1	2	3	4	5	6
1500	48,5-49,5 (46,5-51,5)	1540-1550	900	42,0-45,0 (40,0-47,0)	100 68,0-78,0
					1500 9,0+0,1
					500 9,6+0,1
					860 9,4+0,2
					1090 9,0+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 5,5 d

1. Edition

En

PES 6 A 90 D 410 RS 2633 RQV 300-1500 AB 1165 L

supersedes
comparFiat
engine: 8060.04.662

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2 - 2,3
(2,15-2,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1500	9,1-9,2	5,3 - 5,4	0,3(0,45)	2	3	6
	8,2-8,4	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1530	15,2-17,8	-	-	-	approx 17	100	min. 9,7	250	1,1-1,3
approx. 59	8,1 4,0 1800	1540-1550 1645-1675 0 - 1,0				330-430	300 600-660 = 2,0 800	8,2-8,4 2,0 max. 1,0	670 1080 1500	4,5-4,8 6,0-6,2 8,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel		
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1500	52,5-53,5 (50,5-55,5)	1540-1550*	-	-	100	68,0-78,0	1500 500 930 1130	9,1+0,1 9,6+0,1 9,4+0,2 9,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
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① Test Specifications Fuel Injection Pumps ① WPP001/4 KHD 15,8 k and Governors

1. Edition,
En

PE 10 A 90 D 610/4 LS 2243 RQV 300-1250 AB 1005 DL

1-10- 9- 4- 3 - 6 - 5 - 8 - 7 - 2
0-27-72-99-144-171-216-243-288-315° ±0,5° (±0,75°)

supersedes
company:

KHD
F 10 L 413 L
199 kW (270 PS)
at 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,50-1,60
(1,45-1,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	10,0-10,1	7,3 - 7,4	0,3(0,45)			
250	7,4-7,6	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in □ □

B. Governor Settings

Upper rated speed Degree of deflection of control lever	Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
	Control rod travel mm	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
max.	1290	15,2-17,8			approx. 13	100	mind. 7,5	200
approx. 64	9,0 4,0 1500	1290-1300 1335-1365 0 - 1,0			300	5,9-6,1	600	2,4-3,0

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1250	72,5-73,5 (70,5 - 75,5)	1290-1300*	1000 800	67,5-70,5 (65,5-72,5) 70,5-73,5 (68,5-75,5)	100	14,0-15,0 mmRW	1250 1000 800 500	10,0-10,1 10,0-10,2 10,4-10,6 10,9-11,1	

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 k

1. Edition

En:

PE 12A 95D 610LS 2453 RQV 300-1150 AB 1083 L

supersedes:
company: KHD
engine: F 12 L 413 F
260 kW(352PS)
at 2300 min⁻¹

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12
0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)
2,00-2,10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,5-9,6	8,8-9,0	0,3(0,6)			
	6,4-6,6	1,6-2,2				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1
max.	1150	15,2-17,8	-	-	-	-	env.	100	min.8,0	300	1,4-1,6
							66	300	6,4-6,6	750	4,0-4,3
approx.	8,5	1190-1200						640-700=2,0		1190	8,5
66	4,0	1240-1270					320-400				
	1400	0 - 1,0					3a				

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point	Torque-control travel
rev/min	cm ³ /1000 strokes	2b	4a	5a	6	5
1	2	3	4	5	6	8
150	87,5 - 89,5 (85,5 - 91,5)	1190-1200*	1000	87,0-90,0 (85,0-92,0)	100	1100
			700	88,0-91,0 (85,0-92,0)	120 - 130 at 14,3 - 14,7 mm RW	945
					100-220 (80-240)	800
						700
						400

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 q

1. Edition

PE 8 A 95 D 410 LS 2451 RQV 300-800/1100 AB 973 DL

The specifications given in KHD 1 d are no longer valid due to governor modification.

supersedes KHD-Köln
company F 8 L 413 F
engine 162 kW at 2200 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	9,4-9,5	8,7 - 8,9	0,3(0,6)			
300	5,4-5,6	0,6 - 1,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
max.	1100	15,2-17,8	ca.53	8,5	695-705	approx 11	100	min.7,0	300	1,2-1,3
approx. 64	8,4 4,0 1350	1140-1150 1205-1235 0 - 1,5	4,0	4,0	755-785	320-380	300 650 495-555	5,4-5,6 max.1,0 = 2,0	450 850 1140	2,7-3,1 7,5-7,7 8,8
Torque control travel a = 0,8 mm										

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4a	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	86,5 - 88,5 (84,5 - 90,5)	1140-1150*	700	400	88,5 - 92,5 (86,5 - 94,5) max. 84,5 (max. 86,5)	100	110,0-120,0 at 13,2 - 14,2 mm RW 100-220 (80-240)	1100 800 500	9,4-9,5 9,8-10,0 10,1-10,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

9,82

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① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 h

1. Edition

Testoil-ISO 4113

PE 12 A 95 D 610 LS 2453 RQV300-1150 AB 1047 DL

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12
0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315° ±0,5° (±0,75°) at 2300 min⁻¹

supersedes

company: KHD

engine: F12L413FW

engine: 230kW(313PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15)
2,00-2,10 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	9,1-9,2	7,9 - 8,1	0,3(0,6)			
300	5,9-6,1	0,9 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	approx 11	100	min. 7,5	300	1,4-1,6
-----							300	5,9-6,1	750	4,0-4,3
approx. 64	8,1	1190-1200				325-400	540-600=2,0		1190	8,5
	4,0	1225-1255								
	1350	0 - 1,0								

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	high idle speed	rev/min	cm³/1000 strokes	Control rod travel rev/min
1	2	3	4	5	6	8
1150	78,5 - 80,5 (76,5 - 82,5)	1190-1200*	800	78,0 - 81,0 (76,0 - 83,0)	100	119 - 129

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 g

1. Edition

En

Testoil-ISO 4113

PE 12 A 95 D 610LS 2449 RQV 300-1250 AB 1105 L

supersedes
KHD
company:
BF 12 L 413 F
engine: 353 kW at 2500 min⁻¹

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12
0 - 15 - 60-75 - 120-135-180-195-240-255-300-315° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(1,75-1,95)

Port closing at prestroke

1,80-1,90

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,3 + 0,1	11,4 - 11,6	0,2(0,25)			
	5,9-6,1	0,9 - 1,5	0,2(0,25)			

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	Control rod travel mm rev/min 2 3			Intermediate rated speed Degree of deflection of control lever 4			Control rod travel mm rev/min 5 6			Lower rated speed Degree of deflection of control lever 7			Control rod travel mm rev/min 8 9			Sliding sleeve travel 1
	rev/min 1250	15,2-17,8		rev/min 4		Control rod travel mm 6	rev/min approx 12	100 300	min. 7,5 5,9-6,1	rev/min 100 300	rev/min min. 7,5 5,9-6,1	rev/min 10	mm 11			
max.																
approx. 66	10,3 4,0 1500	1290-1300 1360-1390 0-1,0														

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b rev/min 3	Fuel delivery characteristics high idle speed ⑤a rev/min 4	Fuel delivery characteristics high idle speed ⑤b rev/min 5	Starting fuel delivery idle switching point ⑥ rev/min 6	Torque-control travel Control rod travel mm 8	
rev/min 1	cm³/1000 strokes 2	rev/min 4	rev/min 4	cm³/1000 strokes 5	rev/min 6	rev/min 8	
LDA 1250	0,7bar 113,5-115,5 (111,5-117,5)	1290-1300*	LDA 900	0,7 bar 118,0-121,0 (116,0-123,0)	100	1250 1100	11,3 11,6
			LDA 500	0 bar 69,0- 71,0 (67,0- 73,0)	100-220 (80-240)	900	12,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

D. Adjustment Test for Manifold Pressure Compensator

Test at $n =$ 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting		Measurement	Control rod travel-	diminution difference
	Gauge pressure =	bar	Gauge pressure =	bar	mm (1)
2449 with 1105 L	0,7		0,45	12,0 - 12,1	
			0,20	11,5 - 11,6	
			0	10,0 - 10,2	
				9,5 - 9,6	

Notes

(1) when $n =$

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 n
1. Edition

En

PE 8 A 95 D 410 LS 2609 RQV 300-1250 AP 1128 L

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
company KHD
engine: BF 8 L 413 F
235 kW (320 PS)
at 2500 min -

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1250	11,6+0,1	11,6-11,7	0,3(0,6)			
300	5,9-6,1	1,6-2,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1250	15,2-17,8	-	-	-	approx 11	100	min. 7,5	250	0,5-0,8
approx. 57	10,6 4,0 1450	1290-1300 1370-1400 0 - 1,0				380-550	300	5,9-6,1	580 920 1250	2,9-3,1 4,7-4,9 7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	Control rod travel rev/min
LDA 1250	0,7 bar 116,0-117,0 (114,0-119,0)	1290-1300 *	LDA 750 LDA 500	0,7 bar 121,0-124,0 (119,0-126,0) 0 bar 101,5-103,5 (99,5-105,5)	100 130,0-140,0 at 15,2- 15,6 mm RW	1250 750 1000 12,1+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

Testo ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel-diminution difference mm (1)
PE 8 A .. LS2609 with .. AB 1128	0,27	0,7 0	12,1-12,2 12,4-12,5 11,7-11,8

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 5,7 q 2

8. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2293

RSV 350-1300 AOB 783 L

supersedes 6.82

company: Daimler-Benz

Maß H = 22,5 mm

engine: OM 352 A
110 kW (150 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25

Port closing at prestroke

(2,10-2,30)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1300	11,0+0,1	7,0 - 7,1	0,3(0,45)			
	350	6,9-7,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx 25	350	6,5	1300	11,0+0,1
	X = 3,5						100	min. 19,0	500	11,6+0,1
	10,0	1340-1350					350	6,9-7,1	800	11,4+0,2
approx 65	4,0	1435-1465					570-630 = 2,0			
	1550	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a) Fuel delivery characteristics		Starting fuel delivery Idle		⑤a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	7	8	9	9
LDA	0,7 bar	1340-1350*	LDA	0,7 bar	100	13,8-14,2 mm RW	-	-
1300	7,0-71,0 (68,0-73,0)		500	60,0-63,0 58,0-65,0)				
800	6,5-68,5 (63,5-70,5)		LDA	0 bar				
			500	54,0-56,0 (52,0-58,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel-diminution difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
PES6A.. RS 2293 with.. AOB 783 L	0,38	0,7 0 0,28	11,4 - 11,5 11,6 - 11,7 10,8 - 10,9 11,0 - 11,2

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Testing the hydraulic start-locking device

Locking at: 0.45 - 0.55 bar

Unlocking at: 0.25 - 0.35 bar

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 v 11

1. Edition

En

PES 6 A 90 D 410 RS 2596

RSV 250-1400 AOB 1141 L

supersedes

company: Daimler-Benz

engine: OM 352 A

123 kW (167 PS)

All test specifications are valid for Bosch Fuel injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **2,0 - 2,1**
 (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1380	12,3+0,1	7,9 - 8,0	0,3 (0,45)	2		
	7,9-8,1	0,9 - 1,5	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	approx.				
approx. 60	X = 5,75					14				
5	11,3	1420-1430					350	7,9-8,1		
	4,0	1520-1550					580-640 = 2,0			
	1680	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
LDA 1380	0,7 bar 79,0-80,0 (77,0-82,0)	1420-1430*	LDA 600 LDA 500	0,7 bar 76,5-79,5 (74,5-81,5) 0 bar 51,5-52,5 (49,5-54,5)	100	78,0-88,0 bei 16,4- 16,8 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

BOSCH
 Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6A..RS2596 with ..AOB1141L		0,70 0 0,52 0,21	13,3 - 13,4 11,4 - 11,5 13,0 - 13,1 11,8 - 12,0

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testing the hydraulic start-locking device

Locking at: 0.45 - 0.55 bar

Unlocking at: 0.25 - 0.35 bar

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7x3

1. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2596

RSV 350-1400 AOB 1148 L

supersedes -
 company: Daimler Benz
 engine OM 352 A
 115 kW (155 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(1,95-2,15)

Port closing at prestroke

2,00-2,10

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1380	11,6+0,1	7,3 - 7,4	0,3(0,45)			
	7,9+0,2	0,9 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
1 loose	800	0,3 - 1,0				approx 21	350	7,5	1380	11,5+0,1
approx 64	x = 5,0						100	min. 19	500	12,6+0,1
	1420-1430 = 10,6						350	7,9-8,1	950	12,0+0,3
(5)	1510-1540 = 4,0						530-590 = 2,0			
	1620 = 0,3 - 1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp 40°C (104°F)	rev/min	Note changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
LDA 1380	0,7 bar 73,0-74,0 (71,0-76,0)	1420-1430*	LDA 500	0,7 bar 63,5-66,5 (61,5-68,5)	100	78,0-88,0 bei 15,6- 16,0 mm RW		
			LDA 500	0 bar 54,0-57,0 (52,0-59,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

increasing

Pump/governor	Setting	Gauge pressure =	bar	Measurement	Gauge pressure =	bar	Control rod travel-diminution difference	
							mm	(1)
RS 2596 with AOB 1148 L.	0,43				0,7		12,4 - 12,5	
					0		12,6 - 12,7	
					0,29		11,6 - 11,7	
							12,0 - 12,2	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Prüfen der hydraulischen Startverriegelung:

Verriegelung bei 0,40 - 0,50 bar

Entriegelung bei 0,15 - 0,25 bar

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 RAB 10,8 a

2. Edition

En

Testoil-ISO 4113

PES 6 A 100 D 410 RS 3039 RSV 475-950 A 1 B 2121 L

supersedes 5.82

company RABA

engine 184 kW (250 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,6 - 1,7

Port closing at prestroke (1,55-1,75)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
950	1	13,6+0,1	15,2-15,4	0,3 (0,6)		
	2	5,9-6,1	1,2-1,6	0,3 (0,5)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
loose	800	0,3-1,0	-	-	-	approx. 27	475	5,5	950	13,6+0,1
	x = 3,75						100	min. 19,5	500	15,3+0,2
approx. 49	12,6	990-1000					475	5,9-6,1	840	14,4+0,2
	4,0	1030-1060					570-630 = 2,0			
(5)	1195	0,3-1,7					675	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
LDA 950	0,7 bar 15,0-154,0 (15,0-156,0)	990-1000*	LDA 750 LDA 500	0,7 bar 18,0-184,0 (18,0-186,0) 0 bar 14,5-0-149,0 (14,3-0-151,0)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel mm	diminution difference (1)
	Gauge pressure = bar	Gauge pressure = bar		
PES 6 A..RS 3039 with..A 1 B 2121L	0,7	0 0,55 0,42	15,3 - 15,4 13,7 - 13,8 15,0 - 15,1 14,1 - 14,3	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 FOR 5,9b

3. Edition

En

PES 6 A 90 D 210 RS 2465 Z RSV 250-1200 A OB 743 L

supersedes 6.82

company: Ford

engine: LKW - Tornado

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,45-2,65)

Port closing at prestroke

2,50-2,60

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	10,9+0,1	7,9 - 8,0	0,3(0,45)			
300	7,9-8,1 -----	0,9 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx.	300	7,5	-	-
approx.	X = 2,5					10	100	min. 19		
56	1240-1250 = 9,9						300	7,9-8,1		
(5)	1330-1360 = 4,0						600-660 = 2,0			
	1450=0,3-1,7						800	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational speed limitat		(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp 40°C (104°F) rev/min		Note changed to rev/min		rev/min		rev/min		rev/min	
1	2	3	4	5	6	7	8	9	10
LDA 1200	0,66 bar 78,5-79,5 (76,5-81,5)	1240-1250*	LDA 400	0 bar 44,5-46,5 (42,5-48,5)	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1200 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
2465 cZ with 743 L	0,66	0,47 0,34 0	10,9 - 11,0 10,6 - 10,8 10,1 - 10,2 10,0 - 10,1

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

1A Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 EIC 3,9 b

1. Edition

En

PES 4 A 80 D 320 RS 2651 RSV 300-1075 A1B 2175 R

supersedes -
company Eicher
engine EDL 4-1

Testoil-ISO 4:113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25

Port closing at prestroke (2,1 - 2,3) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1075	10,5+0,1	6,2-6,3	0,2 (0,35)			
300	9,4-9,6	3,0-4,0	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	approx. 26	300	9,0	1075	10,5+0,1
approx.	X = 5,5						100	min. 19,5	500	11,3+0,1
57	9,5	1115-1125					300	9,4-9,6	825	10,8+0,2
(5)	4,0	1165-1195					450-510	=2,0		
	1330	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery idle		5a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1075	62,0-63,0 (60,5-64,5)	1115-1125*	600	64,5-66,5 (63,0-68,0)	100	17,4-18,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 5,7 w5

4. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2569

RSV 350-1400 AOB 1135 L

Supersedes
company2.82
Daimler Benz
OM 352
92 kW (125 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,20-2,40)
2,25-2,35 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	10,8+0,1	6,2 - 6,3	0,3(0,45)			
350	7,9-8,0	0,5 - 1,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx 24	350	4,1	1400	10,8+0,1
	x = 5,0						350	7,9-8,0	750	10,8+0,3
							610-670 = 2,0		500	11,3+0,1
approx 65 5	1440-1450=9,8		1550-1580=4,0		1650=0,3-1,7					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitation	③a) Fuel delivery characteristics		Starting fuel delivery idle		⑤a) Idle stop	
Test oil temp. 40°C (104°F) rev/min	cm³/1000 strokes	Note: changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1400	62,5 - 63,5 (60,5 - 65,5)	1440-1450*	500	44,5 - 47,5 (42,5 - 49,5)	100	79,25-89,25 16,2-16,6 mm RW	-	-
			900	53,5 - 56,5 (51,5 - 58,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

A Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 5,7 w 10

1. Edition

PES 6 A 90 D 410 RS 2569 RSV 350-1400 AOB 1135-1 L

En

supersedes

company:

engine:

Daimler-Benz
OM 352
88 kW (120 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,25-2,35
(2,2 - 2,4) mm (from BDC)

Port closing at prestroke

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1400	9,8-9,9	5,5 - 5,6	0,3(0,45)	2	3	6
	8,3-8,5	0,9 - 1,5	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	approx 20	350	7,9	1400	9,8+0,-
x	=	5,25					100	min.19,0	500	11,1+0,1
approx 63							350	8,3-8,5	950	10,6+0,3
5	8,8	1440-1450					610-670 = 2,0			
	4,0	1505-1535								
	1600	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1400	54,5-55,5 (52,5-57,5)	1440-1450*	500	46,5-49,5 (44,5-51,5)	100	78,0-88,0 bei 16,2- 16,6 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

BOSCH

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 EIC 2,9 c 1

1. Edition

En

PES 3 A 90 D 320 RS 2626 RSV 300-1050 A 1 B 2171 R

1 - 3 - 2 je $120^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)supersedes
company Eicherengine: EDL 3-1
40 kW (54 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke	2,2 - 2,3 (2,15 - 2,35)	mm (from BDC)
---------------------------	----------------------------	---------------

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1050	11,4+0,1	7,3 - 7,4	0,2(0,45)			
300	9,7-9,9	3,3 - 3,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx. 28	300	9,3	1050	11,4+0,1
approx.	x = 5,0						100	min. 19,5	500	12,0+0,1
59	10,4	1090-1100					300	9,7-9,9	890	11,7+0,2
5	4,0	1145-1175					445-505	= 2,0		
	1310	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8
1050	73,0-74,0 (71,0-76,0)	1090-1100*	500	66,5-69,5 (64,5-71,5)	100	78,0-88,0 bei 14,0 - 14,6 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

Testoil-ISO 4113

① Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 PEN 10,0 d

1. Edition

PE 6 P 110 A 320 RS 138 Z RSV 200-900 P 1/305 R

En

supersedes -
company: Volvo Penta
engine: D 100 B/PP

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke		2,6-2,7 (2,55-2,75)		mm (from BDC)		bei RW 9,0-12,0 mm	
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm	
1	2	3	4	2	3	6	
700	8,4-8,5	8,8-9,0	0,4 (0,8)				
225	5,3-5,5	1,0-1,4	0,3 (0,6)				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Loose	800	0,3-1,0	-	-	-	approx.	225	4,9	-	-
	x = 4,75					23	100	min. 20,0		
approx.							225	5,3-5,5		
54	7,4	940-950					310-370=2,0			
5	4,0	970-1000								
	1130	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
700	88,0-90,0 (85,0-93,0)	940-950*	-	-	100	310,0-340,0 bei 20,0 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

BOSCH

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 PEN 12,0 a 2
2. Edition
En

Testoil - ISO 4113

PE 6 P 110 A 320 RS 175

RSV 200-900 P4/421 R

supersedes 8.81
company: Volvo-Penta
engine: TD 120

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,6 - 2,7$
 $(2,55-2,75)$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
700	8,4-8,5	11,9 - 12,1	0,4(0,8)			$25 \pm 0,1$ $(2,2 - 2,9)$
	5,1-5,3	1,3 - 1,7	0,25(0,56)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
loose approx. 56	800	0,3-1,0	-	-	-	approx. 25	225	4,7	-	-
	x =	5,0					100	min. 19,0		
	5	7,4 940-950					225	5,1-5,3	280-340=2,0 mm	-
	4,0	955-980					280-340=2,0 mm			
	1120	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a) Fuel delivery characteristics		Starting fuel delivery Idle		⑤a) Idle stop	
Test oil temp. 40°C (104°F) rev/min	cm³/1000 strokes	Note: changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
700	119,0-121,0 (116,0-124,0)	940-950 *	-	-	100	19,0 - 21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

A Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 5,7 r 3

2. Edition

En

PES 6 A 90 D 410 RS 2293 Z RSV 350-750 AOB 741 L

supersedes 6.82

company: Daimler-Benz
engine: OM 352

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,1 - 2,3) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
700	9,8-9,9	5,0-5,1	0,3(0,45)			
	6,4-6,6	0,5-1,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	approx 15	350	6,5	-	-
	x = 2,0						100	min.19,0		
approx 26	750	8,8					380-410 = 2,0			
	788-796	4,0					450	max.1,0		
	820	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
700	50,0-51,0 (48,0-53,0)	750 *	-	-	100	78,0-88,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 r 4

2. Edition

En

PES 6 A 90 D 410 RS 2293 RSV 350-750 AOB 741 L

supersedes 6.82

company: Daimler-Benz

engine: OM 352 A

62,5 kW (85 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
700	10,9+0,1	6,3 - 6,5	0,3(0,45)			
	7,9-8,1	1,9 - 2,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3 - 1,0	-	-	-	approx. 15	350	8,0	-	-
	x = 20						100 min. 19,0			
approx. 26 ⑤	750	9,9					385-415 = 2,0			
	788-795	4,0								
	820	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a) Fuel delivery characteristics		Starting fuel delivery Idle		⑤a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 5,7 q 6

2. Edition

En

PES 6 A 90 D 410 RS 2293-1

RSV 350-1400 AOB 745-1L

supersedes 6.82

company: Daimler-Benz

engine: OM 352 A

115 kW (156 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25
(2,10-2,30)

mm (from BDC)

Port closing at prestroke

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1380	11,9+0,1	7,6 - 7,7	0,3(0,45)			
350	7,8-8,0	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx 29	350	7,4	-	-
approx.	X	= 4,25					100	min. 19,0		
61	10,9	1420-1430					350	7,8-8,0		
(5)	4,0	1510-1540					550-610=	2,0		
	1700	0,3- 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a) Fuel delivery characteristics		Starting fuel delivery Idle		⑤a) Idle stop	
Test oil temp. 40°C (104°F) rev/min	cm³/1000 strokes	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1380	75,5-76,5 (73,5-78,5)	1420-1430*	600	63,0-66,0 (61,0-68,0)	100	88,0-98,0 bei 16,3 - 16,7 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

BOSCH

A Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MWM 2,1 b

2. Edition

En

PES 2 A 80 D 320 RS 1337 RSV 300-1000 A7B 505-1R

supersedes 6.82

company: MWM

engine: D 226-2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **2,2 - 2,3**
(2,15 - 2,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
980	9,7-9,8	4,8-4,9	0,2 (0,35)			
300	7,2-7,4	1,0 - 1,6	0,2 (0,3)			
600	9,7-9,9	C, Sp. 4 u..5	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
	1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	-	approx 27	300	5,5	-	-
approx.	X = 6,0							100	min. 19,0		
66	8,7	1020-1030						300	5,9-6,1		
(5)	4,0	1050-1080						350-410	= 2,0		
	1205	0,3-1,7						450	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
rev/min	cm³/1000 strokes	3	4	5	6	7	8	9
980	48,0 - 49,0 (46,5-50,5)	1020-1030*	600	40,5-43,5 (39,0-45,0)	100	88,5-104,5 bei 19,0- 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

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Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7x4

1. Edition

En

PES 6 A 90 D 410 RS 2569

RSV 350-1250 AOB 1130-1L

supersedes -

company: Daimler-Benz

engine: OM 352

92 kW (125 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,20-2,40)
2,25-2,35 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	10,9+0,1	6,1 - 6,2	0,3(0,45)			
350	8,1-8,3	0,8 - 1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0				approx.	350	8,2	1250	10, +0,1
	x =	5,0				15	100	min. 19	500	11,9+0,1
approx.			1290-1300 = 9,9				350	8,1-8,3	1025	11,3+0,3
51			1410-1450 = 4,0							
(5)			1550 0,3 - 1,7							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8
1250	61,0-62,0 (59,0-64,0)	1290-1300*	500	52,0-55,0 (50,0-57,0)	100	78,0-88,0 bei 16,4- 16,8 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 5,7 w 9

1. Edition

En

PES 6 A 90 D 410 RS 2569 RSV 350-1400 AOB 2098 L

supersedes

company: Daimler-Benz

engine: OM 352

96 kW (131 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,25-2,35
(2,2 - 2,3) mm (from BDC)

Port closing at prestroke

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1380	12,4+0,1	6,2 - 6,3	0,3(0,45)			
350	10,0+0,2	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
	1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	-	approx.	350	8,0	1380	12,4-12,5
	X = 4,0						27			900	13,0-13,1
approx.	68	11,4	1420-1430					100	min.19,0	1225	12,6-12,9
	(5)	4,0	1500-1530					350	7,9-8,1		
		1625	0,3-1,7					500-560	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
	1	3	4	5	6	7	8	9
1380	62,0-63,0 (60,0-65,0)	1420-1430*	900	60,5-63,5 (58,5-65,5)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

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Geschäftsbericht KH Kundendienst Kfz-Ausrüstung
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1A Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MWM 3,1a

1. Edition

En

PES 3 A 80 D 320 RS 1338 RSV 300-1000 A 7 B 505-1R

supersedes ...
company: MWM
engine: D 226-3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,2-2,3

(2,25-2,35)

mm (from BDC)



Port closing at prestroke	Fuel delivery		Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	cm³/ 100 strokes	mm	cm³/100 strokes	mm
1	2	3	4	2	3	6
980	9,7-9,8	4,8-4,9	0,2(0,35)			
300	7,2-7,4	1,0-1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in [].

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	approx. 27	300	5,5	-	-
approx.	X = 6,0						100	min. 19,0		
66 (5)	8,7	1020-1030					300	5,9-6,1		
	4,0	1050-1080					350	410=2,0		
	1205	0,3-1,7					450	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery		(5a) Idle stop	
Test oil temp. 40°C (104°F) rev/min	cm³/1000 strokes	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	Idle rev/min	cm³/1000 strokes	Control rod travel rev/min	mm
980	48,0-49,0 (46,5-50,5)	1020-1030*	600	40,5-43,5 (39,0-45,0)	100	88,5-104,5 bei 19,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

1A Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MWM 4,1 a

1. Edition

En

PES 4 A 80 D 320 RS 1339

RSV 300-1000 A7B 505-1R

supersedes
company MWM
engine: D 226-4

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,2 - 2,3
(2,15-2,35)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1 980	9,7-9,8	4,8 - 4,9	0,2(0,35)			
300	7,2-7,4	1,0 - 1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1 loose	800	0,3-1,0	-	-	-	approx 27	300	5,5	-	-
approx.	x = 6,0						100	min.19,0		
66	8,7	1020-1030					300	5,9-6,1		
5	4,0	1050-1080					350-410	= 2,0		
	1205	0,3-1,7					450	max.1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
980	48,0 - 49,0 (46,5 - 50,5)	1020-1030*	600	40,5 - 43,5 (39,0 - 45,0)	100	88,5-104,5 bei 19,0- 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 8,3 n 1

1. Edition

En

Testoil-ISO 4113

PE 6 A 95 D 410 RS 2575

RSV 250-1200 A5B 2151 L

supersedes -

company: DAF

engine: DH 825

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump SettingsPort closing at prestroke
2,0 - 2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	10,4+0,1	7,1 - 7,3	0,3 (0,6)			
250	6,0-6,2	0,7 - 1,1	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	approx. 250	250	5,6	1200	10,5+0,1
approx.	X	5,0				24	250	6,0-6,2	500	11,1+0,1
58							635-695 = 2,0		800	11,1+0,1
(5)	9,4	1240-1250							940	10,7+0,3
	4,0	1340-1370								
	1505	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1200	70,5-72,5 (68,5-74,5)	1240-1250*	800	72,5-75,5 (70,5-77,5)	100	121,5-131,5 bei 19,5- 21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

② Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 8,7 c 3

1. Edition

En

PE 6 A 90 D 410 RS 2124 X

RQ 300/1275 AB 658 DL

supersedes

company Daimler-Benz

engine OM 360

125 kW (170 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25
(2,1 - 2,3)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	9,3-9,4	7,7 - 7,8	0,3(0,45)			
300	4,9-5,1	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point		Test specifications		rev/min	Setting point		Test specifications		rev/min
		rev/min	Control rod travel mm	Control rod travel mm	rev/min		rev/min	Control rod travel mm	rev/min	Control rod travel mm	
700	15,6-16,4	700	16,0	8,3 4,0	1290-1305 1345-1375	300	5,0	100 300 350-390 = 2,0 475	min. 6,5 4,9-5,1 2,0 max. 1,0	1250 500 850 1040	9,3-9,4 10,1-10,2 9,8-10,0 9,4-9,7

Torque-control travel

on flyweight assembly dimension a =

0,4

mm

1290-1305 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes / mm
1	2	3		4	5	6	7
1250	77,0-78,0 (75,0-80,0)		450	500 800	69,0-72,0 (67,0-74,0) 77,0-80,0 (75,0-82,0)	100	15,3-21,0 mm RW

Checking values in brackets

8.82

BOSCH

Geschäftsbericht KH Kundendienst Kfz Ausrüstung
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Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,8 a 2

1. Edition

En

PE 6 P 100 A /20 RS 15

RQ 250/1100 PA 43 DR

supersedes
company Daimler-Benz
engine OM 355



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8 - 2,9$
($2,75 - 2,95$) mm (from BD bei 9,0 - 12,0 mm RW)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	13,4+0,1	11,6 - 11,8	0,3(0,6)			
250	7,9-8,1	1,8 - 2,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	rev/min	Control rod travel mm
600	15,6-16,4	600	16,0	12,4 4,0 1350	1145-1160 1200-1230 0 - 1,0	250	8,0	100 250 410-450 = 2,0	min. 9,6 7,9-8,1 = 2,0	-	-

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation. At $1145-1160 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
1100	116,0-118,0 (114,0-120,0)	450	450	104,0-108,0 (102,0-110,0)	100	140,0-160,0

Checking values in brackets

8.82

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 18,3 c

1. Edition

En

PE 10 P 110 A 320 LS 3818

RQ 300/1150 PA 437-2

1 - 8 - 7 - 6 - 3 - 5 - 2 - 10 - 9 - 4
0 - 27 - 72 - 99 - 144 - 171 - 216 - 243 - 288 - 315° ± 0,5° (± 0,75°)

supersedes

company Daimler-Benz

engine OM 423

261 kW (355 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0 - 4,1 mm (from BDC Zyl. 10)
(3,95-4,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1150	2	3	4	2	3	6
	12,1+0,1	12,6 - 12,8	0,4 (0,8)			
300	8,5-8,7	1,2 - 2,0	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min
600	13,0-14,0	600	13,5	11,1 4,0 1350	1190-1205 1225-1255 0 - 1,5	300	6,1	100 300 400-440 = 2,0	min. 7,7 6,0-6,2 = 2,0	1150 600 900	12,1+0,1 12,5+0,1 12,4+0,2

Torque-control travel
on flyweight assembly dimension a = 0,2 mm

Speed regulation: At 1190 - 1205 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
1150	126,0-128,0 (123,0-131,0)	-	600	117,0-121,0 (114,0-124,0)	100	140,0-160,0
			900	115,0-120,0 (112,0-123,0)		

Checking values in brackets

8.82

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MWM 19,9 c

2. Edition

En

(1) PE 6 P 130 A 320 RS 3057 R SUV 300-750 P 9 A 333/1R
 (2) PE 6 P 130 A 300 RS 3056

supersedes 8.82

company MWM - Südbremse
engine TBD 601-6 K

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Komb.-Nr. 0 401 876 712 (1)

0 401 816 704 (2)

A. Fuel Injection Pump Settings

2,8-2,9
Port closing at prestroke (2,75-2,95)

mm (from BDC) at RW = 21,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,0+0,1	34,7 - 35,1 (34,4 - 35,4)	0,5 (0,9)			
300	5,3-5,5	4,7 - 5,5	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx.	300	4, ^a	700	12,0+0,
approx.	x = 4,75					28	300	5,3-5,5	325	13,2+0,6
66	11,0	790-800							450	12,0+0,
⑤	4,0	815-845								
	980	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F) rev/min	cm³/1000 strokes	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7 mm RW	8	9
					100	19,5-21,0		

Full-load delivery is set on the engine according to engine inspection sheet.

Checking values in brackets

* 1 mm less control rod travel than col. 2

A Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MWM 19,9 e

2. Edition

En

Testoil-ISO 4113

PE 6 P 120 A 320 RS 210 R SUV 300 - 900 P 10 A 330/1R

supersedes 1.82

company MWM - Südbremse

engine D/TD/TBD 601-6

TBD 601-6 S

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,3-2,4

(2,25-2,45)

mm (from BDC)

at RW = 21,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	13,0+0,1	26,6 - 27,0 (26,3 - 27,3)	0,5 (0,9)			
300	5,5-5,7	2,8 - 3,6	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx 29	300	5,1	700	13,0+0,1
approx.	x =						100		325	14,2+0,6
70	12,0	940-950					300	5,5-5,7	450	13,0+0,1
5	4,0	965-995					315-375 = 2,0	mm		
	1080	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a) Fuel delivery characteristics		Starting fuel delivery Idle		⑤a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
rev/min	cm³/1000 strokes	3	4	5	6	7	8	9
					100	19,5-21,0		

Full-load delivery is set on the engine according to engine inspection sheet.

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

A Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MWM 19,9 d

2. Edition

En

Testoil-ISO 4113

PE 6 P 120 A 320 RS 396 R SUV 300-750 P 9 A 333/1 R
Komb.-Nr. 0 401 876 242

supersedes 1.82

company MWM - Südbremse

engine D, TD, TBD 601-6

TBD 601-6 S

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump SettingsPort closing at prestroke ^{2,2-2,3}
^(2,15-2,35) mm (from BDC) at RW 21,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	13,0+0,1	26,6 - 27,0 (26,3 - 27,3)	0,5(0,9)			
300	5,5-5,7	2,8 - 3,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in **B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
loose	800	0,3-1,0	-	-	-	approx 29	300	5,1	700	13,0+0,1
approx. 70	x = 5,25						100		325	14,2+0,6
	12,0	790-800					300	5,5-5,7	450	13,0+0,1
5	4,0	815-845					315-375 = 2,0 mm			
	980	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle			⑤a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	mm RW	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8	9

Full-load delivery is set on the engine according to engine inspection sheet.

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MWM 19,9 b

2. Edition

En

Testoil-ISO 4113

(1) PE6P 120 A 320 RS 353
(2) PE6P 120 A 300/3 RS 342

RSUV 300-750 P 9 A 333/1 R supersedes 1.82
company MWM - Südbremse
engine D/TD/TBD 601-6
 601-6 S

Kom.-Nr. 0 401 876 215 (1)
0 401 816 053 (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,3-2,4}
(2,25-2,45) mm (from BDC) at RW = 21 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
700	13,0+0,1	26,6 - 27,0 (26,3 - 27,3)	0,5 (0,9)			
300	5,5-5,7	2,8 - 3,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1)

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
1 loose	800	0,3-1,0	-	-	-	approx. 29	300	5,1	700	13,0-13,1
approx.	x = 5,25						100		450	13,0-13,1
70	12,0=790-800 4,0=815-845 980 =0,3-1,7						300	5,5-5,7	325	14,2-14,8
5							2,0= 315-375			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(1)

2 Full-load stop	6 Rotational-speed limitation	3a Fuel delivery characteristics	Starting fuel delivery idle	5a Idle stop
Test oil temp. 40°C (104°F)	Note: changed to ... rev/min	rev/min cm ³ /1000 strokes	rev/min cm ³ /1000 strokes	rev/min Control rod travel mm
rev/min	3	4 5	6 7 mm RW	8 9

Full-load delivery is set on the engine according to engine inspection sheet.

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

1A Test Specifications Fuel Injection Pumps and Governors

40

WPP-001/4 SCA 11,0 u 4

2. Edition

En

PE 6 P 120 A 720 RS 7001 RSV 350-1100 P 1/481

supersedes 5.81
company Scania
engine DS 11**Testoil-ISO 4113**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settingsfrom FD 1415,0-5,1
Port closing at prestroke (4,95-5,15)

to FD 052

4,4-4,5
(4,35-4,55)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	13,2+0,1	23,8 - 24,2	0,5 (0,9)			3,3 ± 0,1
350	3,9-4,1	1,6 - 2,0	0,5 (0,8)			(3,0 - 3,5) **

Adjust the fuel delivery from each outlet according to the values in

** Due to smoothing of the sealing edge, the initial spring tension with a new
delivery-valve holder must be adjusted to 3,0 ± 3,1 mm.**B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
1 loose	800	0,3 - 1,0	-	-	-	approx 2	350	3,5	-	-
approx. 58	X = 5,5						100	min. 20,0		
	12,2	1140-1150					350	3,9-4,1		
5	4,0	1195-1225					415-475	= 2,0		
	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp. 40°C (104°F) rev/min	cm³/1000 strokes	Note: changed to... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1100	238,0-242,0 (235,0-245,0)	1140-1150*	600	199,0-205,0 (196,0-208,0)	100	220 - 270 at 20,0- 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 SCL 9,8 a 1

1. Edition

En

PE 8 A 95 D 410 RS 2615 RSV 325-1025 A1B 2177 L

1 - 4 - 7 - 6 - 8 - 5 - 2 - 3 je $45^\circ \pm 0,5^\circ$ ($+0,75^\circ$)

supersedes

company

engine

Schlüter
SDMT 110/112W8
136 kW (185 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$
 $(1,95-2,25)$ mm (from BDC) at RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1025	12,7+0,1	10,2 - 10,4	0,3 (0,5)			
	8,4-8,6	1,4 - 2,1	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
loose	800	0,3 - 1,0	-	-	-	approx 27	325	8,0	1025	12,7+0,1
approx 57	x = 5,0						100	min. 19,5	500	13,1+0,1
(5)	11,7	1065-1075					325	8,4-8,6	795	12,8+0,2
	4,0	1165-1195					560-620 = 2,0			
	1330	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
LDA 1025	0,7 bar 102,5-104,5 (100,5-106,5)	1065-1075*	LDA 700 LDA 500	0,7 bar 103,5-106,5 (101,5-108,5) 0 bar 73,5-76,6 (71,5-78,5)	100	171,5-181,5 at 19,5- 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure =	bar	mm	(1)
PE8A..RS2615 with ..A1B2177L	0,32			12,9 - 13,0
		0,70		13,1 - 13,2
		0		12,9 - 12,1
		0,18		12,1 - 12,3

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testing the hydraulic start-locking device

Locking at: 0,4 - 0,5 bar

Unlocking at: 0,15 - 0,25 bar

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 u

3. Edition

En

PE 6 P 120 A 720 RS 7001 RQV 200-1000 PA 539

supersedes
company
engine

5.81
Scania
DS 11

Testoik-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

from FD 1415,0-5,1

to FD 052 4,40-4,50
(4,35-4,55)

Port closing at prestroke

(4,95-5,15)

mm (from BDC)

at RW ≈ 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2+0,1	22,2-22,4	0,5(0,9)			$3,3 \pm 0,1 **$ (3,0 - 3,5)
	4,2-4,4	1,4-1,8	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in
** Due to smoothing of the sealing edge, the initial spring tension with a new
delivery-valve holder must be adjusted to $3,0 \pm 3,1$ mm.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	2a	4	5	4	7	3	10	1
max.	1000	15,2-17,8	-	-	-	approx. 10	100	min. 5,8	150	0,5-0,8
approx. 62	12,2	1040-1050				255-365	225	4,2-4,4	430	3,0-3,5
	4,0	1145-1175							720	5,0-5,2
	1300	0 - 1,0				3a			1000	7,7

Torque control travel = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	rev/min
1	2	3	4	6	8
LDA	0,7 bar	1040-1050*	LDA	100	220,0-270,0
700	222,0-224,0 (219,0-227,0)		1000	at 20,0 - 21,0 mm RW	-
			LDA		
			500		
			0 bar		
			161,0-165,0		
			(158,0-168,0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

D. Adjustment Test for Manifold Pressure Compensator

Test at $n =$ 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
PE 6 P..RS 7001 with ..PA 539	0,44		12,8 - 12,9
		0,70	13,2 - 13,3
		0	11,6 - 11,7
		0,28	12,0 - 12,2

Notes

(1) when $n =$

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,2 a 3

2. Edition

En

PE 8 P 120 A 920/4 LS 7002 RQV 250-1000 PA 547
1-2-7-3-4-5-6-8 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 82
company Scania
engine DS 14

Values only apply to test
nozzle-and-holder assembly 1 688 901 019
and fuel-injection test tubing 1 680 750 067
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

from FD 141 5,0 - 5,1 to FD 052 4,4 - 4,5
Port closing at prestroke (4,95 - 5,15) mm (from BDC) (4,35 - 4,55)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2+0,1	19,2 - 19,4	0,5(0,9)			3,3 \pm 0,1 (3,0 - 3,5)
225	4,7-4,9	1,2 - 1,5	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		1
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1
max.	1000	15,2-17,8		-	-	-		approx. 10	100	min. 6,4	200
approx. 60	12,2	1040-1050						225	4,7-4,9	470	3,3-3,8
	4,0	1140-1170						255-365		730	5,1-5,3
	1300	0 - 1,0								1000	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point	Torque-control travel		
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
LDA	0,7 bar	1040-1050*	LDA	0,7 bar	100	220,0-270,0	-	-
700	192,0-194,0 (189,0-197,0)		1000	192,0-200,0 (190,0-202,0)		at 20,0-21,0		
			LDA	0 bar		mm RW		
			500	143,0-147,0 (140,0-150,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
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D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod diminution
	Gauge pressure = bar	Gauge pressure = bar	mm difference (1)
.LS 7002	0,7 bar	0 bar	13,2 - 13,3
RQV..PA 547		0,29 bar	11,3 - 11,4
		0,38 bar	12,0 - 12,2
			12,5 - 12,6

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Due to smoothing of the sealing edge, the initial spring tension with a new delivery-valve holder must be adjusted to $3,0 \pm 3,1$ mm.

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 d 2

1. Edition
En

PE 6 P 120 A 320 RS 3050

RQV 250-1025 PA 611

supersedes
company Volvo
engine TD 120 FC

Values only apply to test
nozzle-and-holder assembly 1 688 901 019
and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,4 - 2,5
(2,35-2,55) mm (from BDC) at RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,1+0,1	23,7 - 24,0	0,5(0,9)			
250	3,8-4,0	1,8 - 2,4	0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		①			
Degree of deflection of control lever	rev/min	Control rod travel mm	②a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm	①
max.	1080	15,2-17,8	-	-	-	-	approx 8	100	min. 5,3	200	0,6-0,9	475	3,9-4,5	
approx. 64	12,1 4,0 1300	1085-1095 1150-1180 0 - 1,0					③a	250	3,8-4,0	670-940	6,4-6,6	1025	7,5	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point	Torque-control travel		
rev/min 1	cm³/1000 strokes 2	rev/min 3	high idle speed rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	Control rod travel rev/min 8	mm 9
LDA 700	1,2 bar 237,0-240,0 (234,0-243,0)	1085-1095*	LDA 700	0 bar 141,0-145,0 (138,0-148,0)	100	20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS3050 with ..PA611		1,20 0 1,67 0,3	13,1 - 13,2 9,3 - 9,4 12,1 - 12,2 10,5 - 10,7

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,2 a 2

2. Edition

En

PE 8 P 120 A 920/4 LS 7002 RQV 200-950 PA 547
1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 6.82
company: Saab-Scania
engine DSC 1401
LKW T 142

Values only apply to test
nozzle-and-holder assembly 1 688 901 019
and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

from FD 141 5,0 - 5,1 mm (from BDC) to FD 052 4,4 - 4,5 mm
Port closing at prestroke (4,95-5,15) (4,35-4,55)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	13,8+0,1	20,2 - 20,4	0,5 (0,9)			
225	4,4-4,6	0,8 - 1,2	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	① 18	Degree of deflection of control lever	rev/min	Control rod travel mm	④ 4	Degree of deflection of control lever	rev/min	Control rod travel mm	③ 10	rev/min	mm
max.	1070	15,2-17,8	-	-	-	-	approx 9	100	min.6,0	150	0,5-0,8	420	2,9-3,4
approx. 59	12,8 4,0 1250	990-1000 1115-1145 0 - 1,0	② 2a	4	5	6	③ 3a	225	4,4-4,6 350-410 = 2,0	680	4,7-4,9	950	7,1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	② 2b	④ 4b	⑤a high idle speed ⑤b	⑥ 6	⑤ 5
1 LDA 700	0,7 bar 202,0-204,0 (199,0-207,0)	990-1000*	LDA 950	0,7 bar 206,0-214,0 (204,0-216,0) 0 bar 166,0-170,0 (163,0-173,0)	100 230,0-280,0 bei 20,0 - 21,0 mm RW	- -

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

BOSCH

Geschäftsbericht KH Kundendienst Kfz-Ausrüstung
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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
PE8P..LS7002 with ..PA 547	0,38	0,70 0 0,26	13,4 - 13,5 13,8 - 13,9 12,4 - 12,5 12,6 - 12,8

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,8 b 2

1. Edition

En

PES 6 P 120 A 320 RS 417 RQV 300-1150 PA 527-1K

supersedes:
company RVI
engine MIDR 062030

Values only apply to test
nozzle-and-holder assembly 1 688 901 019
and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8-2,9
(2,75-2,95)

mm (from BDC) at RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1 1150	3,5-8,6	14,8-15,0	0,5 (0,9)			
2 300	4,1-4,3	1,8-2,4	0,5 (1,2)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm
1	2	3	②a	4	5	6	④	7	8	9	③	10	11
max.	1200	15,2-17,8	-	-	-	-	approx.	100	min. 5,7	250	0,4-0,7		
approx. 58	7,5	1205-1215					10	300	4,1-4,3	550	3,6-3,7		
	4,0	1275-1305						330-445		850	5,1-5,2		
	1450	0 - 1,0					③a			1150	7,5		

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)			Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	②	②b	⑤a	⑤b	⑥	⑤
1	2	3	④a	4	5	6	8
1150	147,5-149,5 (144,5-152,5)		1205-1215*	750	132,0-138,0 (129,0-141,0)	100	1150
				500	80,0-86,0 (77,0-89,0)	300	350
						18,0-24,0	750
						100-220 (80-240)	500
							8,5+0,1 7,0+0,4 7,7+0,2 7,2+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

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(2) Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4 MB 11,0 p

1. Edition

En

PE 6 P 120 A 320 LS 3823 RQ 300/1150 PA 656

supersedes
company -
engine Daimler-Benz
OM 421 LA
184 kW (250 PS)
Euclid

Values only apply to test
nozzle-and-holder assembly 1 688 901 019
and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

TestoILSO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0 - 4,1
(3,95-4,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1150	11,1+0,2	15,5-15,7	0,5(0,9)			
300	5,0-5,2	1,4-2,2	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min		Full-load speed regulation Setting point Control rod travel rev/min				Idle speed regulation Setting point Control rod travel rev/min				Torque control Control rod travel rev/min	
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	10,1	1195-1210	300	5,0	100	min. 6,5	-	-
VH = max. 46°				4,0	1250-1280			300	4,9-5,1		

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation. At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min		Fuel delivery characteristics rev/min		Starting fuel delivery Idle speed Control rod travel rev/min	
1	2	3	4	5	6	7	
LDA 1150	0,7 bar 155,0-157,0 (152,0-160,0)	-	LDA 600	0,7 bar 155,0-161,0 (152,0-164,0)	100	150,0-170,0	

Checking values in brackets

9.82

BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement		Control rod travel	diminution difference
	Gauge pressure : bar	Gauge pressure : bar		mm	(1)
PE 6 P..LS 3823 with ..PA 656	0,25			10,9 - 11,0	
			0,70	11,1 - 11,2	
			0	10,5 - 10,6	
			0,16	10,6 - 10,8	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

② **Test Specifications**
Fuel Injection Pumps ②
and Governors

40

WPP 001/4 MAN 11,1 r 3

1. Edition

En

PES 6 P 120 A 720 LS 388

RQ 250/1050 PA 452

supersedes -

company

MAN

D 2566 MKF

235 kW (320 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,0-3,1
(2,95-3,15)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	13,1+0,1	22,2-22,6	0,5 (0,9)			
250	6,3-6,5	1,1-1,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications	④	Setting point rev/min	Control rod travel mm	Test specifications	⑤	Control rod travel mm	③
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	10,3 4,0 1350	1095-1110 1175-1205 0 - 1,0	250	6,4	100 250 340-380=2,0	min./,9 6,3-6,5	1050	11,3-11,4 750 1000

Torque-control travel
on fl.; weight assembly dimension a =

0,7

mm

Speed regulation: At 1095-1110 min ⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	②	Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed		⑥
		rev/min	cm³/-1000 strokes	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	
LDA	1,0 bar			-		LDA	1,0 bar	100
750	222,0-226,0 (219,0-229,0)					650	214,0-220,0 (211,0-223,0)	225,0-245,0
LDA	1,0 bar					LDA	0 bar	
1050	184,0-190,0 (181,0-193,0)					500	107,0-111,0 (104,0-114,0)	

Checking values in brackets

9.82

BOSCH

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C19

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting		Measurement		Control rod travel	diminution difference
	Gauge pressure =	bar	Gauge pressure =	bar	mm	(1)
PES 6 P.. LS 388 with RQ..PA 452	0,34		1,0 0 0,61			13,1-13,2 9,4-9,5 10,5-10,6 12,1-12,4

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 3,8 n 7
2. Edition

En

PES 4 A 90 D 410 RS 2570 RSV 350-1200 A 2 B 1147 L

supersedes 8.81

company: Daimler-Benz

engine OM 314 A

63 kW (86 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,25-2,35
(2,2 - 2,4) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	11,8+0,1	6,4 - 6,5	0,2(0,25)			
350	8,9-9,1	0,7 - 1,3	0,2(0,25)			

Adjust the fuel delivery from each outlet according to the values in [].

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx 25	350	7,5	1200	11,8+0,1
approx 52	x = 5,75						350	7,9-8,1	900	12,2+0,2
5	10,5	1240-1250					605-665=2,0mm		600	12,6+0,1
	4,0	1320-1350								
	1475	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F) rev/min	cm³/1000 strokes	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1200	63,5 - 64,5 (61,5 - 66,5)	1240-1250 *	600	57,0-59,0 (55,0 - 61,0)	100	80,0-90,0 at 16,8- 17,2 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 EIC 2,9 b

2. Edition

En

Testoil-ISO 4113

PES 3 A 90 D 320 RS 2626 RSV 300-1075 A 1 B 2146 R

supersedes
company
engine

10.81
Eicher
EDL 3-5
49 kW (67 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at Crustroke (2,15-2,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1075	12,4+0,1	8,3 - 8,4	0,2(0,45)			
300	6,9-7,1	0,9 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in **B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	approx 27	300	6,5	1075	12,4+0,1
approx.	X = 5,0						100	min. 19,0	870	12,8+0,2
60	11,4	1115-1125					300	6,9-7,1	500	13,4+0,1
5	4,0	1160-1190					385-445 = 2,0 mm			
	1330	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	mm RW X X X X X X X X X X X X X X X X	rev/min	Control rod travel mm

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

① Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 DAF 11,6 K 2

1. Edition

En

PE 6 P 120 A 320 RS 372 - 1 y RSV 250-1100 P 5/458 R

supersedes

company

-

DAF

DKX 1160

243 kW (330 PS)

engine.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8 - 2,9
(2,75-2,95)

mm (from BDC)

Port closing at prestroke

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	11,4+0,1	20,4 - 20,8	0,5 (0,9)			
250	6,2-6,4	1,1 - 1,5	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	approx 24	250	5,8	400	11,6+0,1
approx. 54	x = 5,0						100	min. 19,5	300	11,8+0,5
5	10,4	1140-1150					250	6,2-6,4		
	4,0	1265-1295					620-680	= 2,0		
	1425	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a) Fuel delivery characteristics		Starting fuel delivery Idle		⑤a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,7 bar	1140-1150*	LDA	0 bar	100	315,0-355,0	-	-
850	204,0-208,0 (201,0-211,0)		600	139,0-143,0 (136,0-146,0)		at 19,5 - 21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Gauge pressure =	bar	Measurement	Gauge pressure =	bar	Control rod travel-dimension difference	
							mm	(1)
PE 6 P..RS 372-1y with ..P5/458 R	0,37				0,70		11,0-11,1	
					0		11,4-11,5	
					0,30		10,0-10,1	
							10,4-10,6	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

1A

WPP 001/4 FOR 5,9 d

2. Edition

En

PES 6 A 90 D 210 RS 2628 RSV 325-1200 AOB 2140 L

supersedes 5.82

company: Ford

engine:

Dover 363 T/C

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump SettingsPort closing at prestroke
2,7-2,8
(2,65-2,85)At port closing the locating pin must engage
mm (from BDC) in the slot of the pointer.

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1175	11,5+0,1	8,4 - 8,5	0,3(0,45)			
350	5,1-5,3	0,5 - 1,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
loose	800	0,3 - 1,0	-	-	-	approx	350	4,7	-	-
approx	X =	4,0				38	100	min. 19,0		
67	10,5	1240-1250					350	5,1-5,3		
(5)	4,0	1375-1405					490-5	50= 2,0		
	1540	0,3 - 1,7					625	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
LDA	0,7 bar	1240-1250 *	LDA	0 bar	100	76,0 - 90,0	-	-
1175	8,35-84,5 (8,15-86,5)		500	49,0 - 51,0 (47,0 - 53,0)		at 19,0-21,0 mm RW		

* 1 mm less control rod travel than col. 2

Checking values in brackets

BOSCH

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

1175

Pump/governor	Setting	Measurement		Control rod travel mm	diminution difference (1)
		Gauge pressure =	bar		
PES 6 A .. RS 2628 with.. AOB 2140 L	0,7	0		11,5 - 11,6	
		0,48		10,1 - 10,2	
		0,30		11,1 - 11,2	
				10,4 - 10,6	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

A Test Specifications Fuel Injection Pumps and Governors

En

WPP 001/4 FOR 5,9 f

1. Edition

PES 6 A 90 D 210 RS 2629 RSV 350-1300 AOB 2142 L

supersedes -

company: Ford

engine Dover 363



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,7-2,8
(2,65-2,85)At port closing the locating pin must engage
mm (from BDC) in the slot of the pointer.

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1250	11,7+0,1	5,9 - 6,0	0,3(0,45)			
350	7,2-7,4	0,7 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Torque control rev/min	Control rod travel mm
loose	800	0,3 - 1,0	-	-	-	approx	350	6,8	1250	11,7+0,1
approx	X = 3,5					approx	100	min. 19,0	700	11,9+0,1
71	10,7	1370-1380					350	7,2-7,4		
(5)	4,0	1515-1545					580-640 = 2,0			
	1680	0,3-1,7					700	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1250	58,5-59,5 (56,5-61,5)	1370-1380 *	1000	51,0 - 55,0 (49,0 - 57,0)	100	76,0-90,0 at 19,0- 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 FOR 5,9 f 1

1. Edition

En

PES 6 A 90 D 210 RS 2629

RSV 350-1300 A 0 B 2138 L

supersedes -
company Ford
engine 380

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,7-2,8
(2,65-2,85)

mm (from BDC)

At port closing the locating pin must engage
in the slot of the pointer.

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,9+0,1	7,2-7,3	0,3(0,45)			
350	6,4-6,5	0,9-1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx 34	350	6,0	-	-
	x = 2,75						100	min.19,0		
approx 68 (5)	11,9	1365-1375					350	6,4-6,6		
	4,0	1505-1535					515-575=	2,0		
	1670	0,3-1,7					650	max.1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	72,0-73,0 (70,0-75,0)	1365-1375*	900	62,5-66,5 (60,5-68,5)	100	76,0-90,0 at 19,0 - 21,0 mm RW	-	-
			600	51,0-57,0 (49,0-59,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps ① and Governors

NPP 001 STE 10,0 d 1

2. Edition

En

PE 6 P 110 A 320 RS 157 RQV 250-550/1150 PA 140 R

supersedes 5.81
company Steyr
engine 7 FA
235 kW (320 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,00-2,10 mm (from BDC) at $EW = 9,0 - 12,0$ mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1 1150	12,7	1,7 - 1,9	0,4(0,8)	2	3	6
	10,1					
250	5,9-6,1	1,3 - 1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	4	7	8	10	11
	1150	15,2-17,8	ca. 48	4,0	625-655	approx. 10	100	min. 7,5	250	0,9-1,0
approx.	66	1190-1200 4,0 1245-1275 1450	11,7 1245-1275 0 - 1,0				250	5,9-6,1	650	7,4-8,5
						3a	390-450 = 2,0		1200	8,9

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	rev/min
1 DA 1150	0,9 bar 177,0 - 179,0 (174,0 - 182,0)	2	3	4a	5	6
		190-1200*	DA 1150	0 bar 133,0-137,0 (130,0-140,0)	6	7
					100	190 - 210
						-
						-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement		Control rod travel- difference (1)	diminution difference
		Gauge pressure =	bar		
157 with 140 R	0,51	0,90 0,40 0		12,7 - 12,8 12,2 - 12,3 11,3 - 11,5 11,0 - 11,1	

Notes

11 when n =

rev/min and
gauge pressure

bar (maximum full load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 x 1

4. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 300-1400 AB 1138 L

supersedes 82

company Daimler-Benz

engine OM 352 A
124 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

2,15-2,25

(2,1 - 2,3)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1375	11,3+0,1	7,5 - 7,6	0,3(0,45)			
300	7,6-7,8	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1500	16,0-19,4	-	-	-	approx. 15	100 min. 9,2	250 0,9-1,1	300 7,6-7,8	600 3,1-3,4
approx.	10,3	1435-1445				350-475				1000 5,5-5,7
61	4,0	1550-1580				(3a)				1400 8,2
	1650	0 - 1,0								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	5a	6	5		
1	2	3	4	5	6	7	8	9
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445 *	LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	14,3-14,7 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8 .82

BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1 375 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement		Control rod travel- diminution difference
		Gauge pressure =	bar	
PES 6 A..RS 2293 with..AB 1138 L	0,7	0		11,3 - 11,4
		0,28		11,0 - 11,1
				11,1 - 11,2

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 UNI 9, 6 a
2. Edition

En:

Testoil-ISO 4113

PES 6 P 110 A 720 RS 3105

RQV 275-1150 PA 642

supersedes 1.82
company: IVECO-UNIC
engine: 8220-02
176 kW (240 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,2-3,3
(3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,0+0,1	12,7 - 12,9	0,4(0,8)			
275	5,5-5,7	1,4 - 2,0				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	6	7	8	9	10
max.	1190	15,2-17,5	-	-	-	approx	100	min.7,1	225	0,4-0,7
approx.	11,0	1190-1200					275	5,5-5,7	535	3,5-3,9
61	4,0	1285-1315					280-375		840	5,3-5,5
	1450	0 - 1,0							1150	8,0

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	1	rev/min	4a	rev/min	5a	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
LDA	0,7 bar		1190-1200 *		LDA	0 bar	100	170,0-190,0	-	-
1150	127,0 - 129,0 (124,0 - 132,0)				400	81,0 - 83,0 (78,0 - 86,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2
9.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-dimension difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..RS3105 with .. PA 642	0,19	0,7 0 0,14	11,5-11,6 12,0-12,1 10,1-10,2 10,5-10,7

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 x

5. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 300-1400 AB 1140 L
RQV 300-1400 AB 1141 L
RQV 300-1400 AB 1142 L

supersedes 6.82
company: Daimler-Benz
engine: OM 352 A
124,0 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25

Port closing at prestroke (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	11,3+0,1	7,5 - 7,6	0,3(0,45)			
	7,6-7,8	0,9 - 1,5				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

.. AB 1140 L, .. AB 1141 L, .. AB 1142 L

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	1a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	1	rev/min 10	mm 11
max.	1500	16,0-19,4		-	-	-		approx.	100	min. 9,2	250	0,9-1,1	
approx. 61	9,8 4,0 1650	1435-1445 1550-1580 0 - 1,0					350-475	15	300	7,6-7,8	600 950	3,1-3,4 5,3-5,5	
							3a				1400	8,2	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 4a		Fuel delivery characteristics high idle speed 5a		Starting fuel delivery idle switching point 6		Torque-control travel Control rod travel 5	
rev/min 1	cm³/1000 strokes 2	rev/min 3		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445 *		LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	14,3-14,7 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1375 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
PES6A..RS2293 ..AB1140L with ..AB1141L ..AB1142L	0,7	0	11,3 - 11,4
		0,28	11,0 - 11,1
			11,1 - 11,2

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4

3. Edition

En

PE 6 P 120 A 320 RS 363 RQV 200-1000 PA 391 R

supersode 80
compan AEC
engine TL 12/41

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,4 - 3,5
(3,35 - 3,55) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	13,6+0,1	23,4-23,8	0,5 (0,8)			
200	7,1-7,3	2,5-3,1	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	① 18	Degree of deflection of control lever	rev/min	Control rod travel mm	④ 4	Degree of deflection of control lever	rev/min	Control rod travel mm	③ 3	① 10 rev/min	mm 11
max.	1090	15,2-17,8	-	-	-	-	approx.	100 min. 8,8	150	0,6-0,8	430	3,8-4,0	
approx. 60	12,6 4,0 1300	1040-1050 1150-1180 0 - 1,0	25	200 7,1-7,3 290-350 = 2,0	720 1000	150 430 720 1000	5a 3a	7,3 2,0	5,2-5,4 7,5				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	⑥	Torque-control travel		
rev/min	cm³/1000 strokes	rev/min	② 2b ④ 4b	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
LDA 1000	0,9 bar 234,0-238,0 (231,0-241,0)	1040-1050*	LDA 700 LDA 500	0,9 bar 199,0-205,0 (196,0-208,0) 0 bar 141,0-145,0 (138,0-148,0)	100	280,0-320,0	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

8.82

BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel-dimension difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS363 with ..PA391R	0,52	0,9 0 0,45	13,6 - 13,7 11,8 - 11,9 13,2 - 13,3 12,4 - 12,6

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 v 8

3. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2596 RQV 300-1400 AB 1151 L

supersedes 10.81

company: Daimler-Benz

OM 352 A

124 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke 2,00-2,10
1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	11,5+0,1	7,7 - 7,8	0,3(0,45)			
300	7,9-8,1	0,9 - 1,5	0,2(0,4)			
600	11,5+0,1		0,4(0,55)			
450	10,2+0,1	C, Sp. 4 u. 5	0,4(0,55)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		1			
Degree of deflection of control lever	rev/min	Control rod travel	1a	Degree of deflection of control lever	rev/min	Control rod travel	4	Degree of deflection of control lever	rev/min	Control rod travel	3	rev/min	mm	1
1	2	3	2a	4	5	6	4	7	8	9	3	10	mm	11
max.	1500	15,2-17,8		-	-	-		approx. 24	100	min.9,5 300	250	0,7-0,9 630	3,8-3,9	
approx. 61	10,5 4,0 1700	1440-1450 1560-1590 0-1,0						350- 500 3a			1020	5,3-5,4 1400	7,7	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm³/1000 strokes	2b	4b	5a	6	8	5
1	2	3	4	5	6	7	Control rod travel mm
LDA 1400	0,7 bar 77,0 - 78,0 (75,0 - 80,0)	1440-1450*	LDA 600 LDA 450	0,7 bar 63,0 - 65,0 (61,0 - 67,0) 0 bar 42,0 - 44,0 (40,0 - 46,0)	100	73,0 - 83,0 bei 14,8- 15,2 mm RW	- -

Checking values in brackets

* 1 mm less control rod travel than col. 2

8,82

BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting		Measurement		Control rod travel-dimension
	Gauge pressure =	bar	Gauge pressure =	bar	mm (1)
PES 6 A..RS 2596 with ..AB 1151 L	0,29		0,70		11,5 - 11,6
			0		10,2 - 10,3
			0,18		11,1 - 11,2
					10,6 - 10,8

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 OMB 8,1 b

1. Edition

En

PES 6 A 90 D 410 RS 2502

RQV 425-1100 AB 1153.L

supersedes
company OM
engine: 8365.05.520

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke		2,15-2,25 (2,10-2,30)		mm (from BDC)				
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	3	Difference cm³/ 100 strokes	4	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	11,9+0,1	7,8 - 7,9	0,3(0,45)	0,2(0,4)				
	425	8,0-8,2	0,9 - 1,5					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm
max.	1140	15,2-17,8	-	-	-	-	approx. 16	100	min. 9,5	400	0,8-1,0	630	4,3-4,5
approx. 65	10,9 4,0 1350	1140-1150 1220-1250 0 - 1,0					3a	425	8,0-8,2	725	max. 1,0	870	5,8-6,0
								725	max. 1,0	1100			8,0

Torque control travel a = 0,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery Idle switching point	Torque-control travel	
rev/min	cm³/1000 strokes	2b	5a	6	5	
1100	77,5-78,5 (75,5-80,5)	1140-1150*	650	75,0-78,0 (73,0-80,0)	1100 500 760 880	11,9+0,1 12,2+0,1 12,1+0,2 11,9+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 13,8 a 3

3. Edition

En

Testoil-ISO 4113

PE 6 P 120 A 720 RS 167 Z

ROV 225-1100 PA 177 R

supersedes 2.81

company: Fiat

engine: 8210.02

154,5 kW (210 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15)
2,00-2,10 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	10,3	17,5 - 17,9	0,5(0,9)			
	+0,1					
225	7,5-7,7	1,7 - 2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed				Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	1
1	2	3	2a	4	5	6	4	7	8	9	10	11
max.	1100	15,2-17,8		-	-	-		approx. 13	100	min. 9,0	225	0,9-1,0
approx.	9,3	1140-1150							225	7,5-7,7	400	2,4-2,6
62	4,0	1190-1220							285-400		1100	8,4
	1350	0 - 1,0										

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	2b	4a	5a	6	5
1	2	3	4	5	8	Control rod travel mm
1100	175,0-179,0 (172,0-182,0)	1140-1150*			100 min. 16 mm 225 17,0-23,0	

Checking values in brackets

* 1 mm less control rod travel than col 2

9.82

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 13,8 c 1

2. Edition

En

Testoil-ISO 4113

PE 6 P 120 A 720 RS 214 Z

RQV 425-1050 PA 438 R

supersedes 81
company Unic.- IVECO
8215.02.542
engine.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(1,95-2,15)

Port closing at prestroke

2,00-2,10

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1050	9,8-9,9	17,2 - 17,6	0,5(0,9)	2	3	6
425	6,0-6,2	1,7 - 2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	Intermediate rated speed			Degree of deflection of control lever	rev/min	Control rod travel mm	Lower rated speed			Sliding sleeve travel rev/min	mm
			1a	2a	4				7	8	9	3	
max.	1130	15,2-17,8							approx.	100	min 7,6	400	0,2-0,6
	8,8	1090-1100							18	425	6,0-6,2	620	4,1-4,9
approx.	4,0	1175-1205								430-525		830	6,0-6,2
62	1350	0 - 1,0										1050	7,7
									3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point	Torque-control travel		
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
1050	172,0-176,0 (169,0-179,0)	1090-1100*			100	19,5-21,0 mm RW		
					425	17,0-23,0 Electromagnet 24V		

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.32

①

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 12,7 p

1. Edition

En

PE 8 A 95 D 410 LS 2608 RQV 300-1100 AB 1126 L

supersedes
KHD

company

engine F8L413F

133 kW (181 PS)
at 2200 min

Testoil-ISO 4113

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,00-2,10

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	8,4-8,5	7,3 - 7,5	0,3(0,6)			
	5,9-6,1	0,9 - 1,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	Control rod travel rev/min 2	Control rod travel mm 3	Degree of deflection of control lever	Control rod travel rev/min 5	Control rod travel mm 6	Degree of deflection of control lever	Control rod travel rev/min 7	Control rod travel mm 8	rev/min 10	mm 11
max.	1100	15,2-17,8				approx. 14		100 300	min.7,5 5,9-6,1	
approx. 42	7,4 4,0 1350	1140-1150 1185-1215 0 - 1,0						375-425		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation		Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm +0,2	
1100	72,5 - 74,5 (70,5 - 76,5)	1140-1150*	725	89,0 - 92,0 (87,0 - 94,0)	100	120,0-130,0 100-120(80-240)	1100 975 825 725	8,4 8,7 9,6 10,0	

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCHGeschäftsbericht KH Kundendienst Kfz Ausrüstung
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9.82

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 9,6 i

1. Edition

En

Testoil-ISO 4113

PE 6 A 95 D 410 LS 2621 RQ 300/1250 AB 1148 L

1 - 6 - 5 - 4 - 3 - 2
0 -75 -120-195-240-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes =
 company KHD
 engine F6L413F
 125 kW (170 PS)
 at 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1
(1,95 - 2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1250	9,6-9,7	8,3 - 8,5	0,3 (0,6)	6		
	6,9-7,1	1,6 - 2,2	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Full-load speed regulation						Idle speed regulation						Torque control	
	Setting point		Test specifications				Setting point		Test specifications				Control rod travel mm	Control rod travel mm
Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	rev/min	rev/min	rev/min
	550	19,2-20,8	550	20,0	8,6 4,0	1295-1310 1325-1355	300	7,0	100 300 345 450	min. 8,5 6,9-7,1 385=2,0 max. 1,0	1250 550 910 990	1250 550 910 990	9,6- 9,7 10,1-10,2 9,9-10,1 9,6- 9,9	3
VH = 49°														

Torque-control travel
on flyweight assembly dimension a =

= 0,25

mm

Speed regulation At

1295-1310 min⁻¹1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm	Control rod travel mm
1250	82,5 - 84,5 (80,5 - 86,5)		600	800 1000	85,0 - 88,0 (83,0 - 90,0) 84,0-87,0 (82,0-89,0)	100	119,0 - 129,0	

Checking values in brackets

9.82

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 12,7 i

1. Edition
En

PE 8 A 95 D 410 LS 2451 RQ 300/1150 AB 1074 L

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes

company: KHD

engine: F8L 413 F

173 kW (235 PS)
at 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke		2,0-2,1 (1,95-2,15)		mm (from BDC)							
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	3	Difference cm ³ / 100 strokes	4	Control rod travel mm	2	Fuel delivery cm ³ /100 strokes	3	Spring pre-tensioning (torque-control valve) mm	6
1150	9,3-9,4	8,6-8,8		0,3 (0,6)							
	300	5,9-6,1	1,4-2,4	0,3 (0,5)							

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	1	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	6	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	11	Control rod travel mm	3
600	15,6-16,4	600	16,0	8,3 4,0 1325	1195-1210 1120-1250 0-1,0	300	6,0	100 300 350-390 = 2,0 450	min. 7,5 5,9-6,1 = 2,0 max. 1,0	1150 550 875 1000	9,3-9,4 9,7-9,8 9,6-9,8 9,3-9,6

Torque-control travel
on flyweight assembly dimension a = mm Speed regulation. At1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	3	rev/min	4	5	6	7
1150	86,0-88,0 (84,0-90,0)	600	100 700 400	86,5-89,5 (84,5-91,5) 86,5-89,5 (84,5-91,5) max. 84,5 (max. 86,5)		100	116,5-126,5

Checking values in brackets

9.82

A Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 v 12

1. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2596 RSV 350-1200 AOB 1148 L

supersedes

company: Daimler-Benz

engine: OM 352 A

110 kW (150 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1200	12,2+0,1	7,4 - 7,5	0,3(0,45)			
350	8,1-8,3	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	approx			1200	12,2-12,3
approx	x = 5,0					27			600	13,2-13,3
62	11,2	1240-1250					350	min. 19,0	950	12,6-12,9
5	4,0	1385-1415					500-560	= 2,0		
	1500	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
LDA 1200	0,7 bar 74,0-75,0 (72,0-77,0)	1240-1250*	LDA 600 LDA 500	0,7 bar 73,0-75,0 (71,0-77,0) 0 bar 52,0-53,0 (50,0-55,0)	100	78,0-88,0 bei 16,1- 16,5 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
PES 6 A..RS 2596 with ..AOB 1148 L	0,45	0,70 0 0,24	13,2 - 13,3 11,5 - 11,6 12,8 - 12,9 12,0 - 12,2

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

② Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 RAB 9,7a
1. Edition

En

PES 6 A 95 D 410 RS 2108 W RQ 200/1100 AB 647 L

supersedes RABA
company: D 2356 HM6, HMX06
engine:

Testoil-SCO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,65-1,85) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,0+0,1	12,1-12,3	0,3(0,6)			
200	7,4-7,6	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Control rod travel rev/min	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
	600	15,6-16,4	600	16,0	11,0	1145-1160	200	7,5	100	min. 8,9	1100
	VH = max. 46°				4,0	1195-1225			200	7,4-7,6	600
									380-420 = 2 mm		12,0-12,2

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	
1	2	3	4	5	6	7	8	
1100	121,0-123,0 (119,0-125,0)	-	500	max. 118,5 (max. 120,5)	100	min. 18,0 mm RW		

Checking values in brackets

8.82

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 6,2 1

2. Edition

En

Testoil-ISO 4113

PE 6 A 85 D 320 RS2546

RQ 250/1200 AB1023R

supersedes 5.79
 company DAF
 engine DD 615

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25

Port closing at prestroke (2,10-2,30)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9,5-9,6	4,8 - 5,0	0,3(0,45)			
250	5,9-6,1	0,9 - 1,5				

Adjust the fuel delivery from each outlet according to the values in [].

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	rev/min	Setting point		Test specifications		Control rod travel mm	rev/min	Setting point		Test specifications	
		3	4	5	6			7	8	9	10
550	19,2-20,8	550	20,0	8,5	1245-1260	250	6,0	100	min. 7,5	-	-
VH	max. = 46°			4,0	1310-1340			250	5,9-6,1		
				1450	0 - 1,0			305-345	=2,0		
								450	0 - 1		

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At 1245 - 1260 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed		Control rod travel mm
rev/min	cm³/-1000 strokes	rev/min	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	
1	2	4	5	6	7			
1000	49,0 - 50,0 (47,0 - 52,0)							./.

Checking values in brackets

9.52

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 9,7 n

2. Edition

En

PES 6 A 95 D 410 RS 2128 RQ 200/1100 AB 860 DL

supersedes
 company RABA, Daewoo
 engine D 2156 MTN 6
 188 kW (256 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,95-2,05 (1,9 -2,1) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,3+0,1	12,7 - 12,9	0,3(0,6)			
200	5,9-6,1	0,9 - 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	11	Control rod travel mm
600	19,2-20,8	600	20,0	11,3 4,0	1145-1160 1195-1225	200	6,0	100 min. 7,4 200 5,9-6,1 310-350=2,0	1145-1160 min⁻¹	100 600 1015 1070	12,3-12,4 12,8-12,9 12,6-12,8 12,3-12,6

Torque-control travel on flyweight assembly dimension a = 0,2 mm Speed regulation At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	rev/min	Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
		2	3	4	5	6	7
LDA 1100	0,7 bar 126,5-128,5 (124,5-130,5)	200		LDA 800 LDA 500	0,7 bar 128,0-131,0 (126,0-133,0) 0 bar 80,5-84,5 (78,5-86,5)	100	151,5 - 161,5 bei 16,2-16,8 mm RW

Checking values in brackets

8.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement		Control rod travel- diminution (1)
		Gauge pressure =	bar	
PES 6 A..RS 2128 with ..AB 860 DL	0,25	0,70		12,8 - 12,9
		0		10,1 - 10,3
		0,17		12,1 - 12,2
				10,8 - 11,0

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

(2) Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4 MB 8,3 c 4

1. Edition

En

PE 6 A 90 D 410 RS 2124

RQ 300/1250 AB 812 DL

supersedes

company Daimler-Benz

engine OM 360

141 kW (192 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke		mm (from BDC)						
		2,15-2,25 (2,10-2,30)		Difference cm³/100 strokes		Control rod travel		Spring pre-tensioning (torque-control valve)
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes		cm³/ 100 strokes	mm	Control rod travel mm	Fuel delivery cm³/100 strokes	mm
1250	10,2+0,1	8,6 - 8,7	0,3 (0,45)					
	6,3-6,5	1,2 - 1,8		0,2 (0,4)				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
700	15,6-16,4	700	16,0 4,0	9,2 1345-1375	1295-1310	300	6,4	100 300 370-410 = 2,0 500	min.7,9 6,3-6,5 = 2,0 max.1,0	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

1295-1310 min⁻¹

1 mm less control
rod travelSpeed regulation Δr

on flyweight assembly dimension a =

mm

Speed regulation Δr

on flyweight assembly dimension a =

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Speed regulation Δr

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Speed regulation Δr

on flyweight assembly dimension a =

mm

Speed regulation Δr

② Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,4 b

2 Edition

En

PES 6 A 95 D 410 LS 2639

RQ 250/1100 AB 1123-1L

supersedes 5.82

company MAN

engine D 2566 MUH/200
147 kW (200 PS)

Testo 150

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 - 1,8
(1,65-1,85) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
700	13,4+0,1	12,1 - 12,3	0,3 (0,6)	2	3	6
	5,9-6,1	0,9 - 1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min mm	Full-load speed regulation						Idle speed regulation						Torque control	
	Setting point		Test specifications		Setting point		Test specifications		Control rod travel rev/min mm		Control rod travel rev/min mm		Control rod travel rev/min mm	
	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
600	15,6-16,4	600	16,0	11,5 4,0 1350	1145-1160 1245-1275 0 - 1,0	250	6,0	100 250 360-400 = 2,0 450	min. 7,4 5,9-6,1 = 2,0 max. 1,0	1100	12,5-12,6 600 845 900	13,4-13,5 13,1-13,3 12,6-12,9	1145 - 1160 min⁻¹	1 mm less control rod travel

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation A

Full load delivery on governor control lever Test oil temp. 40°C (104°F)	Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery idle speed rev/min	Control rod travel mm
		rev/min	cm³/1000 strokes		
700	120,5-122,5 (118,5-124,5)	-	1100 500	122,5-125,5 (120,5-127,5) 119,5-123,5 (117,5-125,5)	100

Checking values in brackets

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② Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 11,1 p 12

2. Edition

En

PES 6 A 95 D 410 LS 2542 RQ 250/1050 AB 1137 L

supersedes 5.82
MAN
company D 2566 M/MF
engine Gabun-LKW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1050	12,2+0,1	12,3-12,5	0,3 (0,6)			
250	6,7-6,9	0,9 - 1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation						Idle speed regulation						Torque control	
PRG check		Setting point		Test specifications		Setting point		Test specifications		Setting point		Test specifications		Control rod travel mm	
		Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
600	15,6-16,4	600	16,0	11,2 4,0	1095-1110 1210-1240	250	6,8	100 250	min.8,2 6,7-6,8	-	-	-	-	-	-
				1300	0 - 1,0				385-425=2,0mm 475						
									max.1,0						

Torque-control travel
on flywheel assembly dimension $a =$

11-26

Speed regulation $1095-1110 \text{ min}^{-1}$

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		(2)	Control rod stop	(3a)	Fuel delivery characteristics	(3b)	Starting fuel delivery idle speed	(6)
rev/min	cm ³ /1000 strokes		rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2		3		4	5	6	7
1050	123,0-125,0 (121,0-128,0)		-		500	106,5-111,5 (104,5-113,5)	100	125,0-135,0

Specifying values in brackets

8 82

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 14,6 f

5. Edition

En

Testoil-ISO 4113

PE8P120A320LS3811

RQ 300/1150 PA 556

Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

supersedes 9.81
company Daimler-Benz
engine OM 422 A
243 kW (330 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0-4,1 (3,95-5,15)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm		Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
				1	2	3	
1150	10,4 +0,1	16,2 - 16,4	0,4(0,8)				
300	5,0-5,2	1,4 - 2,2	0,8(1,2)				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider Control rod travel rev/min mm	Full load speed regulation				Idle speed regulation				Torque control	
	Setting point rev/min	Control rod travel mm	Test specifications rev/min mm	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min mm	Control rod travel mm	Control rod travel rev/min mm	Control rod travel rev/min mm
600 14,7-16,3	600	15,5	9,4	1195-1210	300	4,2	100	min.6,0	-	-
			4,0	1225-1255			300	4,1-4,2		
							340-380=2,0	mm		

Torque control travel
on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever (Test oil temp. 40°C / 104°F)	Control rod stop		Fuel delivery characteristics		Starting fuel delivery	
	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/100 strokes
1150 162,0 - 164,0 (159,0 - 161,0)	1	2	3	4	600 152,0 - 158,0 (149,0 - 161,0)	100 125 - 145

Checking values in brackets

10.82

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 DAF 8,3 m

2. Edition

En

Testoil-ISO 4113

PE 6 A 95 D 410 RS 2575 RSV 250...900 A 7 3 2060 DL

supersedes 11.79

company DAF

engine DU 825

See service Information VDT-I-DAF 004

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,00-2,10 (1,95-2,15) Port closing difference between control-rod travel 9 mm vom BDC and max. 3,0-4,0°.

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	10,5-10,6	5,2 - 5,4	0,3(0,6)			
250	8,4-8,6	0,9 - 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control rev/min 10	Control rod travel mm 11
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9		
loose	800	0,3-1,0 $X = 4,0$				approx. 18	250	5,5	500	10,5-10,6
approx. 53	940-950=9,5 945-975=4,0 1100= 0,3-1,7						250	5,9-6,1	300	11,3-11,5
2a							290-350=2,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limitat Note changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle rev/min 6	⑤ Idle stop rev/min 8	④a Idle stop Control rod travel mm 9
rev/min 1	cm³/1000 strokes 2	rev/min 4	cm³/1000 strokes 5	rev/min 7 RW	rev/min 7 RW	rev/min 8	rev/min 9
900	51,5 - 53,5 (49,5 - 55,5)	940-950*			100	19,0-21,0	250

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

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② Test Specifications Fuel Injection Pumps and Governors

40

WPP 0014 MAN 9,2 n

2. Edition

En

supersedes 10.79

company MAN

engine D 2565 M/MR/MFR
(138,0kW-188PS)

Testoil-ISO 4113

PES 5 A 95 D 410 LS 2543 Z RQ 250/1050 AB 1042 DL

1 - 3 - 5 - 4 - 2 je $72^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,50-1,60
(1,45-1,65)

Port closing at prestroke mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1050	11,2-11,3	11,7 - 11,9	0,3(0,6)			
250	6,6-6,8	1,4 - 1,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider Control rod travel rev/min mm	Full load speed regulation				Idle speed regulation				Torque control		
	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	10,2	1095-1110	250	6,7	100	min. 8,2	1050	11,2-11,3
1250	0 - 1,0			4,0	1145-1175			250	6,6-6,8	910	11,3-11,6
								500	max. 1,0	800	11,8-12,0
								470-510=2,0		600	12,0-12,1

Torque-control travel on flyweight assembly dimension a =

0,4 mm

Speed regulation At

1095-1110 min

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/1000 strokes	3	rev/min	cm³/1000 strokes	rev/min	cm³/100 strokes
1	2	3	4	5	6	7
1050	116,5 - 118,5 (114,5 - 120,5)		750	114,5 - 117,5 (112,5 - 119,5)	100	149,0 - 159,0
			500	max. 116,5 (max. 118,5)		

Checking values in brackets

9.82

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Test Specifications

Fuel Injection Pumps 1A

and Governors

40

WPP 001/4 MB 11,0 d

4. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 320 LS 3805

RSV 650-1150 P 1/820

supersedes 2.82
company Daimler Benz

engine OM 421
155 kW (211 PS)

6 - 3 - 5 - 2 - 4 - 1
0 -45 -120-165-240-285° ± 0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(3,95-4,15)

Port closing at prestroke

4,00-4,10

mm (from BDC Zyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1130	12,3+0,1	11,9 - 12,1	0,4(0,8)			
650	6,4-6,6	2,3 - 2,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm		Control rod travel mm rev/min			Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-1,0				ca.30	650	6,5	1130	12,3-12,4	
	X = 4,0								600	12,3-12,5	
ca.57	1160-1170 = 11,5						650-715	=2,0			
(2a)	1185-1205 = 4,0										
	1300 = 0,3 - 1,7										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)	6	Rotational-speed limitat Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel rev/min
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
1130	119,0 - 121,0 (116,0 - 124,0)	1160-1170*	-		-	100	130 - 150	-	-

Checking values in brackets

Speed difference between 1.0 mm reguladet and control-rod travel
4.0 mm at n = 25-35 min⁻¹

* 1 mm less control rod travel than col. 2

18.82

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Test Specifications

Fuel Injection Pumps 1A

and Governors

40

WPP 001/4 HOR 2, 9b

1. Edition

Testoil-ISO 4113

PES 3 A 80 D 410/3 RSI313 EP/RSV 400-1250 AU B 1123 L

En

supersedes
comparHolder
engine VD 310-8

1 - 2 - 3 $\pm 0,50^\circ$
0 - 120 - 240° ($\pm 0,75$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,70-1,80
Port closing at prestroke (1,65-1,85) BW 9
mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	9,4-9,5	5,6 - 5,7	0,2(0,35)			
400	6,4-6,6	0,9 - 1,5	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

Port closing difference between control-rod travel 9 and max. = 9.0-9.9°.

B. Governor Settings

1	Upper rated speed rev/min			Intermediate rated speed			4	Lower rated speed			3	Torque control	
	Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6		Control-lever deflection in degrees	rev/min	Control rod travel mm		Control rod travel mm	rev/min
loose	800	0,3-1,0					approx. 22	400	6,0		-	-	
approx. 49	x = 4,0							100	min. 19				
	8,4 1290-1300							400	6,4-6,6				
(2a)	4,0 1315-1345							500-560	= 2,0				
	1500 0,3-1,7							650	0 - 1				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)	6	Rotational-speed limitat Note changed to rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min cm³/1000 strokes	2	3	4	5	6	7	8	9
1250	56,5 - 57,5 (55,0 - 59,0)	1290-1300*							

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

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E12

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

WPP 001/4 MB 5,7w8

2. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2569 RSV 350-1300AOB 1140L

supersedes 2.81

company Daimler Benz

engine OM 352

81 kW (110 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,20-2,40)

Port closing at prestroke

mm (from BDC)

2,25-2,35

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1300	10,1	5,3 - 5,4	0,3(0,45)			
	+0,1					
350	8,6-8,8	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

* Set idle auxiliary spring at 2,0 mm.

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				aprox. 20	350	2,0*	1300	10,1-10,2
							350	8,6-8,8	1050	10,6-10,9
approx. 61	1340-1350=9,1						630-690 = 2,0		500	11,3-11,4
	1435-1465=4,0									
2a	1550=0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)	6	Rotational-speed limitat Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
1300	53,0 - 54,0 (51,0 - 56,0)	1340-1350*	500	45,0 - 47,0 (43,0 - 49,0)		100	78,0-88,0	350	8,7

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 HOR 2,0 b

3. Edition

En

PES 2 A 80D 410/3 RS 1329 RSV 400-1250 AOB 1123 L

supersedes 3.80
 company Holder
 engine VD 6001/2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke		1,7-1,8 (1,65-1,85)		mm (from BDC)		RW 9 mm	1
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes		Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1250	9,7-9,8	6,0-6,1		0,2 (0,35)			
400	6,4-6,6	1,0-1,6		0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in

Port closing difference between control-rod travel 9 and max. = 9.0-9.9°.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
loose	800	0,3-1,0	-	-	-	ca. 22	400	6,0	-	-
	X = 3,75						100	min 19,0		
ca. 48	9,0	1290-1300					400	6,4-6,6		
5	4,0	1330-1360					495-555=	2,0		
	1495	0,3-1,7					600	max.1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(5) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1250	59,5-60,5 (58,0-62,0)	1290-1300*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 11,0 q

1. Edition

En

PE 6 P 120 A 320 LS 3815 RSV 650-1150 P1/820R

Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

supersedes

company Daimler-Benz

engine OM 421 A
206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

4,0 - 4,1
(3,95-4,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1130	12,0+0,1	18,4 - 18,6	0,5(0,9)			
650	4,5-4,7	1,8 - 2,4	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx.	650	4,1	-	-
approx.	X = 3,0					30	650	4,0-4,2		
54	11,0	1160-1170					655-715 = 2,0	**		
5	4,0	1185-1215								
	1300	0,3-1,7								

** Set idle auxiliary spring at 2,0 mm.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1130	184,0-186,0 (181,0-189,0)	1160-1170*	-	-	100	120,0-140,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

②

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MAN 11,1 p 5

2. Edition
En

Testoil-ISO 4113

PES 6 A 95 D 410 LS 2542 RQ 250/1100 AB 1052 DL

Supersedes 30.79
company MAN-SAVIEM
engine D2566 MSH
(177,0kW-241PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,50-1,60 (1,45-1,65)		mm (from BDC)					
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm	
1100	12,0-12,1	12,5 - 12,7	0,3(0,6)				
250	5,9-6,1	0,8 - 1,4	0,3(0,5)				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point	Test specifications		Setting point	Test specifications		Control rod	Control rod		
Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	travel rev/min	travel mm		
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	11,0	1145-1160	250	6,0	100	min. 7,5		
VH = max. 46°				4,0	1190-1220			250	5,9-6,1		
				1300	0 - 1,0			500	max. 1,0		
								335-375=2,0			

Torque-control travel
on flyweight assembly dimension a = 0 mm1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/-1000 strokes	rev/min		rev/min	cm³/-1000 strokes	rev/min	cm³/100 strokes
1100	124,5 - 126,5 (122,5 - 128,5)			500	max. 113,5 (max. 115,5)	100	125,0 - 135,0 14,0-14,6 mm RW

Checking values in brackets

10.32

BOSCHGeschäftsbereich KH Kundendienst Kfz Ausrüstung
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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BRE 9,6b

1. Edition

En

PE 6 P 110 A 320 RS 328

RQV 300-1500 PA 500

supersedes

company: Breda

engine: ID 32/6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,5-3,6 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1500	10,0+0,1	14,8-15,0	0,4(0,8)			
300	6,0-6,2	3,2- 3,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever rev/min	Control rod travel mm	Intermediate rated speed Degree of deflection of control lever rev/min	Control rod travel mm	Lower rated speed Degree of deflection of control lever rev/min	Control rod travel mm	Sliding sleeve travel rev/min
1	2	3	4	7	8	10
max.	1440	15,2-17,8	-	-	ca.14	100
ca.63	9,0	1540-1550	5	300	min.7,6	250
	4,0	1610-1640	6	330-440	6,0-6,2	3,7-3,9
	1675	0- 1,0				1080
						1500
						9,1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)	Rotational-speed limitation intermediate speed rev/min	Fuel delivery characteristics high idle speed rev/min	Starting fuel delivery idle switching point rev/min	Torque-control travel Control rod travel rev/min
2	2b 4a	5a 5b	6	8
1500	148,0-150,0 (145,0-153,0)	1540-1550*	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

BOSCH

Geschäftsbericht KH Kundendienst Kfz-Ausstattung
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1A Test Specifications Fuel Injection Pumps and Governors

40

WPP001/4 MB 5,7g¹

1. Edition

En

PES6A800410 RS2085X

RSV350-1300A2B1005DL

supersedes

company Daimler-Benz
engine OM 352

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25

Port closing at prestroke

(2,1-2,3)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1290	8,1-8,2	3,9-4,0	0,2(0,35)			
350	7,9-8,1	1,9-2,2	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0 X=4,25	-	-	-	ca.20	350	7,5	1290	8,1-8,2
ca.50	7,1 4,0 1550	1330-1340 1450-1480 0,3-1,7					100 350	min.19,5 7,9-8,1	500 800	9,3-9,4 8,6-8,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
	1290	39,0-40,0 (37,5-41,5)	1330-1340*	800 500	37,0-39,0 (35,5-40,5) 36,0-38,0 (34,5-39,5)	100	78,5-88,5 14,6- 15,0mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

Test Specifications Fuel Injection Pumps and Governors

IPP 001/4 MB 5,7 x 5

1. Edition

En

PES 6 A 90 D 410 RS 2596

RSV 350-1400 AOB 2099 L

supersedes

company Daimler-Benz

engine C.I 352 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0 - 2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1380	12,6+0,1	7,8 - 7,9	0,3(0,45)			
350	8,2-8,4	0,5 - 1,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca.22	350	8,3	1380	12,6+0,1
	X =	2,0					470	1,9-2,1	500	13,5+0,1
5a.53	11,6	1420-1430							1150	13,1+0,3
	4,0	1480-1510								
	1550	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F) rev/min	cm³/1000 strokes	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1380	77,5-78,5 (75,5-80,5)	1420-1430*	800	78,0-80,0 (76,0-82,0)	100	100,0-110,0 78,8- 18,2 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

① **Test Specifications
Fuel Injection Pumps
and Governors**

WPP 001/4 PEN7,0 c 1
1. Edition

En

PE6P100A320RS291Z RSV200-1200P1/305R

supersedes -
company: Volvo-Penta
engine: D 70 B/PP

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8-2,9

(2,75-2,95)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	8,5-8,6	5,6-5,8	0,3(0,6)			
225	5,8-6,0	1,0-1,4	0,25(0,5)			

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Degree of deflection of control lever	Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control		
	rev/min	Control rod travel mm	rev/min	Degree of deflection of control lever	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
loose	800	0,3-1,0	X=5,0	-	-	-	ca.22	225	5,4	-	-	
ca.64	7,5	1240-1250	5	4,0	1300-1330	1400	0,3-1,7	100	min.20,0	225	5,3-5,5	280-300=2,0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)	rev/min cm³/1000 strokes	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
700	56,0-58,0 (54,0-60,0)	1240-1250*	-	-	100	210,0-260,0 20,0- 21,0mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

Test Specifications Fuel Injection Pumps and Governors

1A

WPP 001/4 MAN 11,1 p 10

2. Edition

En

PES 6 A 95 D 410 LS 2542 RSV 250-1100 A1B 1124

supersedes 5.81

company RVI-Saviem

engine MAN D2566 MSFV

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 - 1,6
 (1,45-1,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	11,7+0,1	11,3 - 11,5	0,3(0,6)			
250	5,9-6,1	0,9 - 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control		
Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	
loose	800	0,3-1,0	-	-	-	ca.23	250	5,5	1100	11,7-11,8	
	X =	4,75					100	min.19,5	500	12,2+0,1	
ca.60	10,7	1140-1150					250	5,9-6,1	915	11,9+0,2	
(5)	4,0	1185-1215					365-425=2,0				
	1350	0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F) rev/min	cm³/1000 strokes	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1100	112,5-114,5 (110,5-116,5)	1140-1150*	700	102,5-105,5 (100,5-107,5)	100	121,5-131,5 15,2- 16,0 mm RW	-	-
			500	max. 106,5 (max. 108,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 8,3 i 1

4. Edition

En

Testoil-ISO 4113

PE 6 A 90 D 410 RS 2524

RSV 250-1200 A 5 B 2012 DL

supersedes 10.81

company DAF

engine DH 825

** Cold start test on EP/RSV governor according
to Service Information.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,25-2,45)

Port closing at prestroke 2,30-2,40 RW 9 mm (from BDC)

Port closing difference between control-
rod travel 9 and max. = 4,5 - 5,5°.

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	9,4-9,5	7,0 - 7,1	0,3(0,45)			
250	6,5-6,7	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca. 16	250	5,5	1000	9,4-9,5
X	= 3,0						250	5,9-5,1	400	9,4-9,6
(5) a. 49	1240-1250 = 8,4						580-640		300	9,5+0,5
	1260-1290 = 4,0									
	1480 = 0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle		5a Idle stop	
Test oil temp 40°C (104°F)	rev/min	cm³/1000 strokes	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8	9
1000		70,0 - 71,0 (68,0 - 73,0)	1240-1250*	-	-	100	19,0-21,0 **	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

8.82

Test Specifications

Distributor-type Fuel-injection Pumps

46

WPP 001/4 PER 5,8 c 4

1. Edition

En

VE 6/12 F 1300 L 21-2
0 460 426 013

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar) company PERKINS
engine: T6.354.4

supersedes...

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/..

Testoil-ISO 4113

Pre-stroke setting 0,45 mm

1. Settings	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	600	2,5-2,9 mm	0,66	
1.2 Supply pump pressure	600	3,8-4,4 bar (kgf/cm²)	0,66	
1.3 Full-load delivery without charge-air pressure	1000	78,5-82,5 cm³/1000 strokes	0	2,5 (3,0)
Full-load delivery with charge-air pressure	1000	92,5-93,5 cm³/1000 strokes	0,66	
1.4 Idle speed regulation	270	8,0-12,0 cm³/1000 strokes	0	2,5(3,0)
1.5 Start	100	min. 78,0 cm³/1000 strokes	0	
1.6 Full-load speed regulation	1480	42,0-50,0 cm³/1000 strokes	0,66	
1.7 Load-dependent start of delivery	-			

2. Test Specifications

Checking values in brackets ()

2.1 Timing device LDA=0,66 bar	n = rev/min mm	400 0,7-1,5 (0,4-1,8)	600 (2,0-3,4)	800 3,8-4,6 (3,5-4,9)
2.2 Supply pump LDA=0,66 bar	n = rev/min bar (kgf/cm²)	300 3,0-3,6		1300 6,0-6,6
Overflow delivery	n = rev/min cm³/10 s	500 55-111 (40-126)		1300 55-111 (40-126)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	1550 1480 1300 1000 1000 *700 500	max. 9,0 (42,0-50,0) 86,5-89,5 (85,7-90,3) (78,2-82,8) (90,7-95,3) 84,5-88,5 (84,2-88,8) 68,5-72,5 (67,5-73,5)	0,66 0,66 0,66 0 0,66 0,32 0	K KF MS SVS	- 5,2-5,4 1,1-1,3 max. 6,0
switch-off	1300	0		XK XL B	21,8-23,8 12,4-15,7
Idle stop	330-420 270	0 (6,0-14,0)		Observations * Manifold-pressure compensator stroke = 4,0 mm.	
End stop	150 230	min. 78 max. 78		Correction at the adjusting nut.(46)	
2.4 Solenoid	max. cut-in voltage test voltage				

9.82

Test Specifications

Distributor-type Fuel-injection Pumps

46

WPP 001/4 VW 1,5c

2. Edition

En

VE 4/9 F 2000 R 25
R 25

supersedes 4.82
company VW
engine EA 086

0 460 494 010
0 460 494 011

Overflow Temperature 45°C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/

Pre-stroke setting -- mm

1. Settings

	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,4 - 3,8 mm		
1.2 Supply pump pressure	1500	4,0 - 4,6 bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	29,5 - 30,5 cm³/1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure	--	- cm³/1000 strokes		
1.4 Idle speed regulation	415	6,0 - 10,0 cm³/1000 strokes		2,5(3,0)
1.5 Start	100	min. 38,0 cm³/1000 strokes		
1.6 Full-load speed regulation	2050	8,0 - 14,0 cm³/1000 strokes		
1.7 Load-dependent start of delivery	--	-		

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1500 (2,9-4,3)	1800 4,6-5,4(4,3-5,7)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 1,3-1,9		2000 5,4-6,0
Overflow delivery	n = rev/min cm³/10 s	500 55-138(40-153)		2000 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2060-2160 2050 2030 2000 1500 600	0 17,5-24,5 25,0-27,0 18,0-21,0 (7,0-15,0) (17,0-25,0) (29,7-28,3) (27,7-32,3) (16,5-22,5)		K KF MS SVS * FH	3,2-3,4 5,7-5,9 1,2-1,4 max. 3,6 1,8-2,4
switch-off elect.	400	bei 2,5 V 0		A B	9,0-14,0 10,4-15,6
idle stop	700 415	max. 2,0 (4,0-12,0)			
End stop	400 500	min. 13,5 max. 19,5			
2.4 Solenoid	max cut-in voltage 12V rated voltage 12V.	xxx min. 10 V		Observations * *operating stroke (KSB)	

Testoil-ISO 4113

Test Specifications

Distributor-type

Fuel-injection Pumps

46

WPP 001/4 VW 1,5d

2. Edition

En

VE 4/9 F 1800 R 25-1
R 25-1 P

0 460 494 012
0 460 494 013

Overflow temperature 45°C

supersedes 4.82
company VW
engine EA 086

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460V.

Testoil-ISO 4113

Pre-stroke setting -- mm

1. Settings

	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,4 - 3,8 mm		
1.2 Supply pump pressure	1500	4,0 - 4,6 bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	29,5 - 30,5 cm³/1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure	--	- cm³/1000 strokes		
1.4 Idle speed regulation	415	6,0 - 10,0 cm³/1000 strokes		2,5(3,0)
1.5 Start	100	min. 33,0 cm³/1000 strokes		
1.6 Full-load speed regulation	1900	6,0 - 12,0 cm³/1000 strokes		
1.7 Load-dependent start of delivery	--	-		

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1500 (2,9-4,3)	1800 4,6-5,4(4,3-5,7)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 1,3-1,9		1800 4,8-5,4
Overflow delivery	n = rev/min cm³/10 s	500 55-138(40-153)		1800 55-138(40-153)

2.3 Fuel delivery

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	1920-2040	0		K	3,2-3,4
	1900	(5,0-13,0)		KF	5,7-5,9
	1850	(22,0-30,0)		MS	1,2-14,
	1800	(26,2-30,8)		SVS	max.3,6
	1500	(27,7-32,3)		* FH	1,8-2,4
	600	(16,5-22,5)		A	9,0-14,0
switch-off elect.	400	bei 2,5 V 0		B	10,4-15,6
idle stop	700 415	(4,0-12,0)		Observations	
End stop	400 500	min. 13,5 max. 19,5		* *operating stroke (KSB)	
2.4 Solenoid	max cut-in voltage xxx	min. 10 V			
	xxx	rated voltage 12V.			

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 VWV 1,6t
2. Ausgabe

En

VE 4/9 F 2100 R 48-2 (P)

0 460 494 102; 103 Overflow temperature 45°C

supersedes 6.82
company: VWV
engine: Typ 2 USA

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

1. Settings	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,3-3,7	mm	
1.2 Supply pump pressure	1500	4,8-5,4	bar (kgf/cm²)	
1.3 Full-load delivery without charge-air pressure	1500	33,0-34,0	cm³/1000 strokes	2,5 (3,0)
Full-load delivery with charge-air pressure	--	--	cm³/1000 strokes	
1.4 Idle speed regulation	415	6,0-10,0	cm³/1000 strokes	2,5 (3,0)
1.5 Start	100	min. 38,0	cm³/1000 strokes	
1.6 Full-load speed regulation	2300	11,5-17,5	cm³/1000 strokes	
1.7 Load-dependent start of delivery	--	--		

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,2-2,0 (0,9-2,3)	1500 (2,8-4,2)	2100 5,4-6,2 (5,1-6,5)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,1-2,7		2100 6,3-6,9
Overflow delivery	n = rev/min cm³/10 s	500 55-138 (40-153)		2100 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2450-2550 2400 2300 2100 1500 600	0 max. 5,5 (10,5-18,5) (25,7-30,3) (31,2-35,8) 21,5-24,5 (20,0-26,0)		K KF MS SVS + FH XK . XL A B	3,2-3,4 5,7-5,9 1,3-1,5 max. 4,8 1,8-2,4 18,6-20,6 7,5-10,8
switch-off elect.	400	0			
Idle stop	2000 450 415	max. 3,0 min. 2,0 (4,0-12,0)			
End stop	400 470	min. 17 max. 23			
2.4 Solenoid	max cut-in voltage XXXXXXXXXXXXXX test voltage	xxx min. 10,0 V rated voltage 12V.		Observations + *operating stroke (KSB)	

Testoil-ISO 4113

BOSCH

Geschäftsbericht KH Kunden-ID: 81 Kfz Ausstattung
VWV 1,6t 4-Gang-Schaltgetriebe 5G 10/70 10 Stufen, v.a. Drehmoment in der Federbelastung

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VW 2,3a

3. Edition

En

VE 6/10 F 2250 L 36 (P)
0 460 406 005; 006supersedes 6.82
company: VW
engine: 087 LT

Overflow temperature 45°C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/..

Pre-stroke setting -- mm

1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	2000	3,1 - 3,5 mm		
1.2 Supply pump pressure	2000	6,4 - 7,0 bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	28,5 - 29,5 cm³/1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure	--	- cm³/1000 strokes		
1.4 Idle speed regulation	350	10,0 - 14,0 cm³/1000 strokes		2,5(3,0)
1.5 Start	100	min. 43,0 cm³/1000 strokes		
1.6 Full-load speed regulation	2525	6,0 - 12,0 cm³/1000 strokes		
1.7 Load-dependent start of delivery	--	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1500 0,9-1,7(0,6-2,0)	2000 (2,6-4,0)	2250 3,8-4,6(3,5-4,9)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,7-3,3		2250 7,1-7,7
Overflow delivery	n = rev/min cm³/10 s	500 55-138(40-153)		2250 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2725	max. 3,0		K	3,2-3,4
	2525		(5,0-13,0)	KF	6,4-6,6
	2250	24,0-26,0	(22,7-27,3)	MS	1,4-1,6
	1500		(26,7-31,3)	SVS	max. 4,5
	750	26,5-29,5	(25,0-31,0)		
switch-off				XK	20,1-22,1
				KL	8,9-12,6
elect.	400	0			
idle stop	400			Observations	
	350	2,0-8,0	(1,0-9,0)		
End stop	400		(8,0-16,0)		
	500	min. 21			
2.4 Solenoid		max cut-in voltage xxx min. 10,0 V			
		xxx x90xxxxx rated voltage 12V.			

Testoil-ISO 4113

Test Specifications

Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6u
3. Edition

En

VE 4/9 F 2100 R 48
0 460 494 039

Overflow temperature 45°C

supersedes 6.82
company VWW
engine: EA 162/1,6

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

--

mm

see VDT-W-460/..

1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,3-3,7 mm		
1.2 Supply pump pressure	1500	4,8-5,4 bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	33,0-34,0 cm³/1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure	--	-- cm³/1000 strokes		
1.4 Idle speed regulation	415	6,0-10,0 cm³/1000 strokes		
1.5 Start	100	min. 38,0 cm³/1000 strokes		
1.6 Full-load speed regulation	2300	11,5-17,5 cm³/1000 strokes		
1.7 Load-dependent start of delivery	--	--		

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,2-2,0(0,9-2,3)	1500 (2,8-4,2)	2100 5,4-6,2(5,1-6,5)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,1-2,7		2100 6,3-6,9
Overflow delivery	n = rev/min cm³/10 s	500 55-138(40-153)		2100 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2450-2550 2400 2300 2100 1500 600	0 max. 5,5 27,0-29,0 (25,7-30,3) (31,2-35,8) 21,5-24,5 (20,0-26,0)		K KF MS svs + FH A XK B XL	3,2-3,4 5,7-5,9 1,3-1,5 max. 4,8 1,8-2,4 18,6-20,6 7,5-10,8
switch-off elect.	400	0			
Idle stop	2000 450 415	max. 3,0 min. 2,0 (4,0-12,0)			
End stop	400 500	min. 17 max. 23			
4 Solenoid	max cut-in voltage resistor value	xxx min. 10,0 V xxx rated voltage 12V.		Observations + *operating stroke (KSB)	

BOSCH

Geschäftsbericht KH Kundenberatung Kfz Ausstattung

1982 by Robert Bosch GmbH Stuttgart-Daimlerstrasse 1 Printed in the Federal Republic of Germany

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWW 2,3b1

2. Edition

En

VE 6/10 F 2400 L 32

0 460 406 003

Overflow temperature 45°C

superseded 82
company VW
engine 087/10

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers.

Test Instructions and Test Equipment

Pre-stroke setting

1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,8 - 3,2	mm	
1.2 Supply pump pressure	1500	5,2 - 5,8	bar (kgf/cm ²)	
1.3 Full-load delivery without charge-air pressure	1500	28,5 - 29,5	cm ³ /1000 strokes	2,5(3,0)
Full-load delivery with charge-air pressure	--	-	cm ³ /1000 strokes	
1.4 Idle speed regulation	350	10,0 - 14,0	cm ³ /1000 strokes	2,5(3,0)
1.5 Start	100	min. 42,0	cm ³ /1000 strokes	
1.6 Full-load speed regulation	2600	15,0 - 22,0	cm ³ /1000 strokes	
1.7 Load-dependent start of delivery	--	-		

2. Test Specifications

checking values in brackets

2.1 Timing device	$n = \text{rev/min}$	1000	1500	2400
	mm	0,8-1,6(0,5-1,9)	(2,3-3,7)	6,0-6,8(5,7-7,1)
2.2 Supply pump	$n = \text{rev/min}$	600		2400
	bar (kgf/cm ²)	2,8-3,4		7,7-8,3
Overflow delivery	$n = \text{rev/min}$	500		2400
	cm ³ /10 s	55-138(40-153)		55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)	Designation	and adjustment mm
End stop	2700 2600 2400 1500 750	6,0-12,0 (14,5-22,5) (20,7-25,3) (26,7-31,3) 26,0-29,0 (24,5-30,5)		K KF MS SVS	3,2-3,4 6,4-6,6 1,4-1,6 max.3,0
switch-off	2400	0		XK XL	18,5-20,5 9,2-12,9
Idle stop	400 350	3,0-9,0 (8,0-16,0)		Observations	
End stop	400 500	min. 20,0 max. 25,0			

24 Solenoid max cut-in voltage xxx min. 10,0 V
rest voltage xxx rated voltage 12V.

Geschäftsbericht RH Kundendienst Kfz Ausrüstung
1480 by Hubert Busch GmbH, Postfach 100, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany

Test Specifications

Distributor-type

Fuel-injection Pumps

46

WPP 001/4 VW 1,6 d

4. Edition

EN

supersedes 7.82
company VW
engine 1,6 l Rabbit

VE 4/9 F 2400 R 66-8

0 460 494 077

Overflow temperature 45°C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

--

mm

see VDT-W-46C/

1. Settings

	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	2,9-3,3 mm		
1.2 Supply pump pressure	1500	4,9-5,5 bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	30,0-31,0 cm³/1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure	--	- cm³/1000 strokes		
1.4 Idle speed regulation	415	7,0-11,0 cm³/1000 strokes		2,5(3,0)
1.5 Start	100	min. 38,0 cm³/1000 strokes		
1.6 Full-load speed regulation	2600	11,0-17,0 cm³/1000 strokes		
1.7 Load-dependent start of delivery	--	-		

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1500 (2,4-3,8)	2400 6,1-6,9(5,8-7,2)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,1-2,7		2400 7,0-7,6
Overflow delivery	n = rev/min cm³/10 s	500 55-138(40-123)		2400 55-138(40-123)
2.3 Fuel deliveries				
Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation for assembly and adjustment mm
End stop	2700 2600 2400 1500 600	2,5-9,5 (2,0-10,0) 26,0-28,0 (24,7-29,3) 17,5-20,5 (16,0-22,0)		K 3,2-3,4
switch-off elect.	400	0		KF 5,7-5,9
Idle stop	1200 600 415	max. 5,0 max. 6,0 (5,0-13,0)		MS 1,3-1,5
End stop	400 500	min. 13,5 max. 19,5		SVS max. 2,5
2.4 Solenoid	max cut-in voltage xxx	min. 10,0 V		*FH 1,8-2,4
	xxx	rated voltage 12V.		XK 18,4-20,4
				XL 10,5-13,8
Observations				
* *operating stroke (KSB)				

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWL 1,5€

2. Edition

En

VE 4/9 F 1500 R 25-2

0 460 494 017
0 460 494 018

Overflow temperature 45°C

supersedes 4.82
company VWW
engine EA 086

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers.

Test Instructions and Test Equipment

Pre-stroke setting	mm	see VDI-W-450/1		
1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,4 - 3,8	mm	
1.2 Supply pump pressure	1500	5,1 - 5,7	bar (kgf/cm²)	
1.3 Full-load delivery without charge-air pressure	1000	27,5 - 28,5	cm³/1000 strokes	2,5(3,0)
Full-load delivery with charge-air pressure	--	-	cm³/1000 strokes	
1.4 Idle speed regulation	415	6,0 - 10,0	cm³/1000 strokes	2,5(3,0)
1.5 Start	100	min. 38,0	cm³/1000 strokes	
1.6 Full-load speed regulation	1560	19,0 - 25,0	cm³/1000 strokes	
1.7 Load-dependent start of delivery	--	-		

2. Test Specifications

checking values in brackets (

2.1 Timing device	n = rev/min	1000	1500
	mm	1,3-2,1(1,0-2,4)	(2,9-4,3)
2.2 Supply pump	n = rev/min	400	
	bar (kgf/cm²)	2,4-3,0	
Overflow delivery	n = rev/min	500	1500
	cm³/10 s	55-138(40-153)	55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)	Designation	and adjustment mm
End stop	1595-1640	0		K	3,2-3,4
	1560		(18,0-26,0)		
	1500	29,0-31,0	(27,7-32,3)	KF	5,7-5,9
	1000		(25,7-30,3)	MS	1,2-1,4
	600	22,5-25,5	(21,0-27,0)	SVS	max.3,6
				* FH	1,8-2,4

switch-off
elect.

Idle stop

415 (4,0-12,0) * *operating stroke (VSP)

End stop

500 max. 24,0

24 Solenoid max cut-in voltage xxx min. 10 V
max cut-off voltage xxxx rated voltage 12V.

Observations

* *operating
stroke (KSB)

Test Specifications

Fuel Injection Pumps ①A and Governors

40

WPP 001/4 MB 5,7w3

3. Edition

En

Testoil - ISO 4113

PES 6 A 90 D 410 RS 2569 RSV 350 - 1275 A0 B 1138 L

supersedes 2.01
company Daimler-Benz
engine OM 352
62 kW (84 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,20-2,40)

Port closing at prestroke 2,25-2,35 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
	2	3	4	2	3	6
1250	8,4-8,5	4,0 - 4,1	0,3(0,25)			
350	7,7-7,9	0,8 - 1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed rev/min	Torque control rev/min
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control lever deflection in degrees	Control rod travel mm	Control rod travel mm
loose	800	0,3-1,0	approx 35	350	7,3
	x = 6,0			350	7,7-7,9
approx 72	1290-1300 = 7,4		670-730 = 2,0	785	9,0-9,2
2a	1405-1435 = 4,0				
	1545 = 0,3 - 1,7				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6 Rotational-speed limit Note changed to 1 rev/min	3a Fuel delivery characteristics	Starting fuel delivery Idle	5	4a Idle stop	
rev/min	cm³/1000 strokes	3	4 rev/min	6 rev/min	7 cm³/1000 strokes	8 rev/min	9 Control rod travel mm
1250	40,5 - 41,5 (38,5 - 43,5)	1290-1300*	750 600	39,5 - 41,5 (37,5 - 43,5) 37,0 - 39,0 (35,0 - 41,0)	100	80,0-90,0 RW 15,8- 16,2 mm	350 8,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

Test Specifications

Fuel Injection Pumps **1A**

and Governors

40

WPP 001/4 MB 3,8n1

4 . Edition

En

PES 4 A 90 D 410 RS 2570

RSV 350-1300 A 2 B 1126 DL

supersedes 8.80
company Daimler-Benz
engine OM 314
55 kW (75 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke
(2,20-2,40)
2,25-2,35

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1300	9,9-10,0	5,2 - 5,4	0,3(0,45)			
350	8,7-8,9	1,2 - 1,8	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever	Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed			③ Torque control Control rod travel rev/min	
	Control rod travel mm	Control rod travel mm rev/min	4		5	6	8		10
loose	800	0,3-1,0					350	8,3	1300
approx.	X	= 4,0					350	8,7-8,9	1050
51	1340-1350=8,9						575-635=2,0		600
2a	1420-1450=4,0								450
	1600=0,3-1,7								11,2-11,4

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F) rev/min	cm³/1000 strokes	⑥ Rotational-speed limitat Note changed to rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle rev/min	⑤	④a Idle stop Control rod travel mm	
			4	5				
1300	52,5 - 54,5 (50,5 - 56,5)	1340-1350*	600	50,0 - 52,0 (48,0 - 54,0)	100	80,0-90,0 16,3 - 16,7 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

BOSCH

Geschäftsbericht KH Kundendienst Kfz-Ausrüstung
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②

Test Specifications Fuel Injection Pumps ② and Governors

40

NPP 001/4 MB 11,4 h

3. Edition

En

Testoil-ISO 4113

PES 6 P 110 A 820 LS 422

RQ 300/1100 PA 327-1

supersedes 8.81
company Daimler-Benz
engine OM 407
147 kW (200 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) mm (from BDC) Zyl. 6
3,00-3,10

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	9,6-9,7	10,30 - 10,50	0,4(0,8)			
300	7,0-7,2	1,3 - 1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in [].

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm	
600	13,0-14,0	600	13,5	8,6	1145-1160	300	6,1	100	min. 7,5	-	-
				4,0	1175-1205			300	6,0-6,2		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	6	cm³/1000 strokes / mm
1100	103,0 - 105,0 (100,0 - 108,0)		500	78,0 - 82,0 (75,0 - 85,0)	100	130,0 - 150,0

Checking values in brackets

10.82

② **Test Specifications
Fuel Injection Pumps ②
and Governors**

WPP 001/4 MB 5,7 y

1. Edition

En

PES 6 A 90 D 410 RS 2293 RQ 900 AB 1079 L

supersedes

company Daimler-Benz

engine OM 352 A

82 kW (111 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke		2,15-2,25 (2,10-2,30)		mm (from BDC)			Spring pre-tensioning (torque-control valve) mm 6
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes		
850	10,8+0,1	6,9 - 7,0	0,3(0,45)				
	5,9-6,1	0,9 - 1,4	0,2(0,4)				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications	Control rod travel mm	Setting point rev/min	Control rod travel mm
-	-	-	-	9,8 4,0 1000	905-910 940-950 0 - 1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a = mm 1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	Control rod travel
850	69,0-70,0 (67,0-72,0)	-	-	-	100	73,0-83,0 bei 14,6-15,0 mm RW	6

Checking values in brackets

10.82

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7v4

2. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2569

ROV 300-1450 AB 1114 L

supersedes 0.80
 company Daimler-Benz
 OM 352
 engine 81 kW (110 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,20-2,40)
 2,25-2,35 mm (from BDC) RW 10,5

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1450	9,2-9,3	4,4 - 4,5	0,3(0,45)			
300	8,4-8,6	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed				Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm	1	
1	2	3	18	4	5	4	7	8	10	11		
max.	1450	15,2-17,8					approx. 25	100	min. 10,0	250	0,7-0,9	
approx. 63	8,5 4,0 1700	1490-1500 1565-1595 0 - 1,0						300	8,4-8,6	650	3,8-4,0	
							3a	550-610=2,0		1500	8,4	

Torque control travel a = 1,1 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	Control rod travel rev/min
1450	44,5 - 45,5 (42,5 - 47,5)	1490-1500*	500	34,5 - 37,5 (32,5 - 39,5)	100	73,0-83,0 at 15,4 - 15,8 mm RW 100-220(80-240)	1450 9,2 1130 9,4 760 9,9 500 10,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

① Test Specifications Fuel Injection Pumps ① and Governors

WPP001/4 KHD 4,7 b

1. Edition

En

PES 5 A 80 D 410/3 RS 2579 RQV 300-1400 AB 1048 DL

1-3-5-4-2 je $72^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -
company KHD
engine F 5 L 912
47 kW (64 PS)
at 2800 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,9-2,0
(1.85-2.05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	11,4+0,	6,1-6,2	0,2(0,35)			
300	8,9-9,	1,0-1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1
1	2	3	2a	4	5	6	7	8	9	10	11
max.	1400	15,2-17,8		-	-	-	approx. 10	100	min. 7,5	250	0-0,6
approx.	10,4	1480-1490					390-490	300	5,9-6,1	630	2,9-3,1
60	4,0	1710-1740						750	max. 1,0	1020	5,0-5,3
	1850	0-1,0								1400	5,9

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm ³ /1000 strokes	2b	5a	6	5	
1	2	3	4	5	8	
1400	62,5-63,5 (61,0-65,0)	1480-1490*	900 750	59,5-61,5 (57,5-63,5) 56,5-58,5 (55,0-60,0)	100 at 20,5-21,5 mmRW	1400 11,4+0,1 825 500
						11,5+0,3 12,0+0,2 12,4+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

① Test Specifications Fuel Injection Pumps ① and Governors

WPP C01/4 MWM 8,8 a 1

1. Edition

En

PE 8 A 100 D 320 RS 3009 RQV 750 AB 995 R

1 - 8 - 5 - 4 - 7 - 2 - 3 - 6
0 - 30 - 90 - 120 - 180 - 210 - 270 - 300° ± 0,5° (± 0,75°)

supersedes
company MWM
engine: D, TD 232 V 8

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
710	9,6-9,7	9,0 - 9,2	0,3 (0,6)			
300	6,6-6,8	1,5 - 2,1	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		④ 1			
Degree of deflection of control lever	rev/min	Control rod travel mm	① 1a	Degree of deflection of control lever	rev/min	Control rod travel mm	② 4	Degree of deflection of control lever	rev/min	Control rod travel mm	③ 3	rev/min	mm	
1	2	3	② 2a	4	5	6	③ 3a	7	8	9	10	11	650	0,6
approx. 22	8,0 4,0 825	750-755 780-790 0 - 1,0	-	-	-	-	-	-	-	-	650 700 750 800 824	2,7 5,0 8,0 11,0	700 750 800 824	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥	Torque-control travel ⑤
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	rev/min
1	2	3	4	5	6	8
710	90,0-92,0 (88,0-94,0)		-	-	100	15,7-16,3 mm RW
						-

Checking values in brackets

* 1 mm less control rod travel than col 2

9.82

BOSCH

Geschäftsbericht KH Kundendienst Kfz-Ausrüstung
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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 K 2

1. Edition

En

PES 6 A 85 D 410 RS 2592 RQV 300-1250 AB 1158 L

supersedes

company: KHD

engine: BF 6 L 913

GMC-Fahrzeug

118 kW (160 PS)

bei 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113**A. Fuel Injection Pump Settings**

Port closing at prestroke			^{2, 2-2, 3} _(2, 15-2, 35)	mm (from BDC) at 9,0-12,0 mm RW			Spring pre-tensioning (torque-control valve)
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes		
1250	12,5+0,1	8,5-8,6	0,3 (0,45)				
300	8,3-8,5	1,0-1,6	0,2(0,4)				

Adjust the fuel delivery from each outlet according to the values in **B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel					
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm	①
1	2	3	②a	4	5	6	④	7	8	9	③	10	11	
max.	1290	15,2-17,8		-	-	-		approx	100	min. 10,2	250	0,5-0,8		
approx.	11,5	1290-1300						17	300	8,3-8,5	580	3,6-3,7		
66	4,0	1375-1405						450-575			920	5,3-5,4		
	1500	0 - 1,0						③a			1250	8,1		

Torque control travel a = mm**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	④b	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
LDA	0,7 bar	1290-1300*		LDA	0,7 bar	100	108,5-118,5	1250	12,5+0,1
1250	84,5-85,5 (82,5-87,5)			800	84,5-87,5 (82,5-89,5)		at 19,0-	500	13,2+0,1
				LDA	0 bar	21,0 mm RW		800	13,2+0,1
				500	59,0-60,0 (57,0-62,0)			1000	12,9+0,1
								1100	12,7+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

BOSCHGeschäftsbericht KH Kundendienst Kfz-Ausrüstung
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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 6,2 1 1

1. Edition

En

PE 6 A 85 D 320 RS 2546 RSV 250-900 A 7 B 2061 R

supersedes -
company DAF
engine DD 615

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC) RW 9 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	5
900	10,5+0,1	6,0-6,1	0,3(0,45)			
250	7,4-7,6	1,0-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [] .

Port closing difference between control-rod travel 9
and max. = 3,0-4,0°.**B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800 x = 4,0	0,3-1,0	-	-	.	ca. 19	250	5,5	370	11,7-12,3
sa. 53	9,5 4,0 1100	940-950 945-975 0,3-1,7					250	5,9-6,1	650	10,5-10,6
							290-350= 2,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
900	60,0-61,0 (58,0-63,0)	940-950*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

A Test Specifications Fuel Injection Pumps and Governors

40

NPP 001/4 MB 5,70

6. Edition

En

Testoil - ISO 4113

PES 6 A 90 D 410 RS 2293 Z RSV 575-1250 A 1 B 618 L

supersedes 2.82

company Daimler-Benz

engine OM 352 A

107 kW (145 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,10-2,30)

2,15-2,25

mm (from BDC)

Port closing at prestroke

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1230	11,2+0,1	7,5 - 7,6	0,3(0,45)			
575	7,4-7,6	2,1 - 2,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 13	575	7,5	-	-
	x = 5,0						610	1,9-2,1		
ca. 66	1260-1270 = 10,2						580-640=2,0			
(5)	1400 = 0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	Control rod travel mm
1	2	3	4	5	6	7	8
1230	74,5 - 75,5 (72,5 - 77,5)	1260-1270*	-	-	100	71,0-81,0 bei 13,8- 14,2 mm RW	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Speed difference between 1.0 mm regulated and control-rod travel 4.0 mm at n = 25 - 35 min⁻¹.

10.82

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 v 6

3. Edition

En

PES 6 A 90 D 410 RS 2569

RSV 575-1250 A 1 B 618

supersedes 2.82

company Daimler Benz

engine OM 352

85 kW (115 PS)

1 - 5 - 3 - 6 - 2 - 4
0 - 60 - 120 - 180 - 240 - 300° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings (2,20-2,40)

Port closing at prestroke

2,25-2,35

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1230	12,0+0,1	6,2 - 6,3	0,3(0,45)			
575	8,4-8,6	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	X = 3,75			ca. 28	575	6,5		
							100	min. 19		
(5) ca. 58	1250-1260	= 11,0	1275-1295 = 4,0				650	0 - 1		
	1230	- 11,0					575-635	= 2,0		
	1435	- 0,3- 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1230	61,5- 62,5 (59,5 - 64,5)	1250-1260*	-	-	100	80,0-90,0 17,1-17,5 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Speed difference between 1.0 mm regulated and control-rod travel 4.0 mm at n = 25 - 35 min¹.

10.82

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 OMB 8,1 b 1

1. Edition

En

PES 6 A 90 D 410 RS 2502 RQV 300-1050 AB 1157 L

supersedes

company OM-Fiat

engine 8365.05.590
Schlepper

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1050	11,5+0,1	7,6 - 7,7	0,3(0,45)			
300	8,2-8,4	0,9 - 1,5				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	① 18	Degree of deflection of control lever	rev/min	Control rod travel mm	④ 4	Degree of deflection of control lever	rev/min	Control rod travel mm	③ 1
1	2	3	2a	4	5	6	4	7	8	9	10
max.	1110	15,2-17,8	-	-	-	-	approx. 20	100	min. 9,8	250	1,0-1,2
approx. 64	10,5 4,0 1300	1090-1100 1170-1200 0 - 1,0	6a					300	8,2-8,4	520	4,2-4,4
								335-440=	2,0	780	5,6-5,8
								675	max.1,0	1050	7,8

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	② 2b ④ a	rev/min	cm³/1000 strokes	⑥ 6	⑤ 5
1050	76,0-77,0 (74,0-79,0)	1090-1100*	650	73,0-76,0 (71,0-78,0)	100 128,0-148,0 at 18,2- 18,6 mm RW	1050 11,5+0, 500 11,9+0, 755 11,8+0, 870 11,5+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 EIC 3,9 c

1. Edition

En

PES 4 A 90 D 320 RS 2634 RSV 300-1025 A 1 B 2153 R

1 - 2 - 4 - 3 je $90^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes

company Eicher

engine: EDL 4-2

65 kW (88 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2 - 2,3
 (2,15-2,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1025	12,6+0,1	8,1 - 8,2	0,2(0,45)			
300	10,9+0,2	4,4 - 4,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in **B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3 - 1,0	-	-	-	approx.	300	10,5	1025	12,6+0,1
approx	x = 2,0					16	100	min.19,0	500	13,2+0,1
46	11,6	1065-1075					300	10,9-11,1	880	12,9+0,2
5	4,0	1070-1100					395-455=2,0			
	1255	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.		(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ...	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8	9
1025	81,0-82,0 (79,0-84,0)	1065-1075*	750	83,5-86,5 (81,5-88,5)		100	19,0-21,0 mm RW	-	-
			500	77,0-79,0 (75,0-81,0)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 ALS 3,8a
2. Edition

En

PES 4 A 90 D 320 RS 2641

RSV 350-1200 A 2 B 2158 R

supersedes 6.82
company Alsthom-Atlant
engine -
50 kW (68 PS)
AGROM-N 4-72

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke
2,5-2,6
(2,45-2,65)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1200	8,4-8,5	5,4-5,5	0,3(0,45)			
350	5,9-6,1	0,9 -1,5	0,3(0,4)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx	350	5,5	1200	8,4+0,1
approx 44	X = 3,0					17	100 min. 19,0	450	8,9+0,2	
							350 5,9-6,1	600	8,4+0,2	
							395-455=2,0			
5	7,4	1240-1250					500 max. 1,0			
	4,0	1260-1290								
	1425	0,3 - 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8
	1200	54,0-55,0 (52,0-57,0)	1240-1250*	450	41,0-43,0 (39,0-45,0)	100	19,0-21,0 mm RW	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10 .82

1A Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 5,7 q 4
2. Edition

En

PES6A 90 D 410 RS 2293 RSV 350-1300 AOB 1101 DL

supersedes 8.81
company: Daimler-Benz

engine: OM 352 A
110 kW (150 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke
^{2,15-2,25}
(2,1-2,3) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1300	2	3	4	2	3	6
	10,6+0,1	7,0 - 7,1	0,3(0,45)			
350	6,9-7,1	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
loose	800	0,3-1,0	-	-	-	approx.	350	6,5	1300	0,6+0,1
	x = 3,0						18		800	0,9+0,2
approx. 55	9,6	1340-1350	-	-	-	approx.	350	6,9-7,1	500	1,3+0,1
	4,0	1375-1405					465-525=2,0mm			
5	1500	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1300	70,0 - 71,0 (68,0 - 73,0)	1340-1350*	500	62,0 - 64,0 (60,0 - 66,0)	100	80,0-90,0 at 14,6- 15,0 mm RV		

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 4,7 c

1. Edition

En

PES 5 A 80 D 410/3 RS 2603 RS 325/1650 A 0 B 2087 L

supersedes

company KHD

engine F 5 L 912

63 kW (85 PS)₁
at 3300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings1,9 - 2,0
(1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1500	9,9-10,0	5,1 - 5,2	0,2(0,35)			
325	8,7-8,9	1,7 - 2,1	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in [].

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	approx.	325	8,8	-	-
approx.	49	8,9	1690-1700			18	100	min.13,6		
	5	4,0	1740-1770				325	8,7-8,9		
		1900	0 - 1,0				550-590	=2,0		
							600	max.1,8		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle		5a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
	1500	50,5-51,5 (49,0-53,0)	1690-1700*	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

(1A) Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 5,7 v 9

1. Edition

En

PES 6 A 90 D 410 RS 2596

RSV 350-750 AOB 741 L

supersedes

company Daimler-Benz

engine OM 352 A
65 kW (88 PS)

Testo-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1
 (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
700	13,0+0,1	6,6 - 6,7				
100	17,4+0,4	7,1 - 8,1				

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	500	0,3-1,0	-	-	-	approx.	350	8,1	-	-
approx.	X =					14	100	min.19,0 **		
26 ⑤	12,0 4,0 850	740-750 780-795 0,3-1,7					360-420 = 2,0			

Set auxiliary idle spring at 2.0 mm control-rod travel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	Control rod travel mm
700	65,5-66,5 (63,5-68,5)	740-750*	-	-	100	71,0-81,0 bei 17,4- 17,8 mm RW	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

F24

BOSCH

Geschäftsbericht KH Kundendienst Kfz-Ausrüstung
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PE 6 P 120 A 720 RS 7001 RSV 350-1100 P 1/481

supersedes 9.82

Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

company Saab-Scania
engine DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

ab FD 141: 5,0-5,1
Port closing at prestroke (4,95-5,15) bis FD 052: 4,4-4,5 mm
mm (from BDC) (4,35-4,55)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 1	Difference cm ³ / 100 strokes 2	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	13,2+0,1 2	20,7 - 20,9 3	0,5(0,9) 4			3,3 ± 0,1 6
350	4,5-4,6	1,6 - 2,0	0,3(0,6)			(3,0 - 3,5)**

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational-speed limitat	3a Fuel delivery characteristics		Starting fuel delivery Idle		5a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
rev/min	cm³/1000 strokes	3	4	5	6	7	8	9
1000	207,0-209,0 (204,0-212,0)	1140-1150*	600	198,0-204,0 (195,0-207,0)	100	210,0-260,0 20,0 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9-3,1 mm.

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 1 g 8

1. Edition

En

PES 4 A 85 D 410/3 RS 2610 RSV 325-1150 A 8 B 2163 L

supersedes*

company KHD

engine F 4 L 913

55 kW (75 PS)₁bei 2300 min⁻¹

Schlepper DX 80

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump SettingsPort closing at prestroke 2,5 - 2,6
(2,45-2,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1150	11,3+0,1	6,8 - 6,9	0,3(0,45)			
325	9,1-9,3	1,7 - 2,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in _____

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	approx.	325	8,7	1150	11,3+0,1
	x = 4,5					18	100	min.19,0	500	12,0+0,1
approx.							325	9,1-9,3	900	11,6+0,2
54	10,3	1190-1200					470-530=	2,0		
(5)	4,0	1245-1275								
	1400	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp 40°C (104°F)	rev/min	Note: changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1150	68,0-69,0 (66,0-71,0)	1190-1200*	500	59,0-62,0 (57,0-64,0)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10,82

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 o 1

2. Edition

En

PES 6 A 90 D 410 RS 2293 RSV 575-1250 A 1 B 618 L

supersedes 11.80
 company Daimler-Benz
 engine OM 352
 88 kW (120 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
 (2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1230	10,5±0,1	6,1-6,2	0,3(0,45)			
575	6,4-5,6	1,1-1,7	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 28	575	5,5	-	-
	x = 5,0						100	min. 19,0		
sa.58	9,5	1250-1260					580-610 = 2,0	**		
	4,0	1275-1295					650	max. 1,0		

** Set idle-speed auxiliary spring at 2,0 mm control-rod travel,
 then 1/2 turn back.
 The numbers denote the sequence of the tests.

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F) rev/min	cm³/1000 strokes	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1230	61,0-62,0 (59,0-64,0)	1250-1260*	-	-	100	14,7-15,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

9.82

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 PER 10,0h

2. Edition

En

PES 8 MW 100/720 RS 1021
0 403 448 116

RQV 250-1300 MW 30-1

supersedes 6.82

company: Perkins

engine: V 8.640 V

160 kW (218 PS)

1 - 8 - 7 - 5 - 4 - 3 - 6 - 2
0 - 45 - 90 - 135 - 180 - 225 - 270 - 315

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke		3,00-3,10 (2,95-3,15)		mm (from BDC)		RW 9,0-12,0 mm	
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm	
1300	12,0+0,1	9,0 - 9,2	0,35(0,6)				
	8,1-8,3	1,35-1,75	0,35(0,55)				
	12,0+0,1		0,5 (0,7)				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
max.	1300	15,2-17,8	4	-	-	7	ca.14	250	8,1-8,3	
	1550	0 - 1,0					100		min.9,6	
ca.64	11,0	1340-1350	5			8	270-600			
	4,0	1445-1475					(3a)			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1300	90,0-92,0 (88,0-94,0)	1340-1350*	800	89,5-93,5 (87,5-95,5)	100	min. 140,0			
					100-180 (80-200)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

Testoil-ISO 4113

Com.-No.

... 116

Port closing and TDC markings

°camshaft between port closing and TDC

at control-rod travel 9,0 - 12,0 mm

15°

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 PER 10,0 n

1. Edition

En

PES 8 MW 100/720 RS 1106

RQV 250-1300 MW 30-1

0 403 448 117

supersedes
company Perkins
engine V 8.640 V
160 kW (218 PS)

1 - 8 - 7 - 5 - 4 - 3 - 6 - 2
0 -45 -90 -135-180-225-270-315

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,00-3,10
(2,95-3,15) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1300	10,7+0,1	9,0 - 9,2	0,35(0,6)			
250	6,4-6,6	1,35-1,75	0,35(0,55)			
800	10,7+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1300	15,2-17,8				ca.14	250	6,4-6,6		
	1550	0 - 1,0					100	min.8,1		
ca.64	9,7	1340-1350					490-550	= 2,0		
	4,0	1425-1455								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	rev/min
1	2	3	4	5	6	8
1300	90,0-92,0 (88,0-94,0)	1340-1350*	800	89,5-93,5 (87,5-95,5)	100 min. 140	
					100-180 (80-200)	

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
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Port closing and TDC markings

°camshaft between port closing and TDC
at control-rod travel 9,0 - 12,0 mm

15°

Com.-No.

...117

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,9c1
3. Edition
En

Testoil-ISO 4113

VA 4/100 H 1250 CR 67-1
CR 67-1 P
0 460 304 193
0 460 304 194

supersedes 68/82

company IHC
engine D 239 TD 8 C

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,5 mm ± 0,04
Setting of the pointer at a stroke of 1 mm in relation to outlet A

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	4,5-5,5 mm		
1.2 Supply pump pressure	800	5,2-5,7 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	69,5-70,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1330	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min mm	200-330 Beginn 400 1,1-2,1(0,8-2,4)	800 (4,2-5,8)	1000 6,1-7,1(5,8-7,4)	1100-1250 6,9-7,6(6,6-7,9)
2.2 Supply pump	rev/min kp/cm ²	200 2,1-2,6(1,9-2,8)	800 (5,0-5,9)		1250 7,0-7,5(6,8-7,7)
Overflow delivery	rev/min cm ³ /10 s	500 55-100(40-110)			1250 55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1370-1420 (1350-1440) 1330 1280-1300 1250 800 500	0 (30,0-40,0) Beginn 66,0-69,0 (65,0-70,0) (69,0-71,0) 71,0-74,0 (70,0-75,0)	
	Stop	1250	0	
Idle stop	Full	400-450 350	0 (11,5-19,5)	
	Start	100	mind.90,0	
End stop		220-300		

9.82

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 40 \pm 8^\circ$</p> <p>$\gamma = 30 - 8^\circ$</p> <p>$\delta = 60 \pm 8^\circ$</p>	<p>Pump</p> <p>Dimension ∇ 1,8 mm</p> <p>Dimension ∇ 24,6 mm</p>

(2) Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4 KHD 15,8 g

1. Edition

En

PE10P110A920/5 LS 3073 RQ300/1150PA535

supersedes -

company: BF10L413F

engine 265kW (360 PS)

bei 2050 min⁻¹

bzw. 259 kW (352 PS)

bei 2300 min⁻¹

(Maxidyne)

1-10- 9- 4- 3 - 6 - 5 - 8 - 7 - 2

0-27-72-99-144-171-216-243-288-315° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
800	11,6+0,1	13,8-14,0	0,4(0,8)			
	6,9-7,1	1,8-2,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
CV=VMP	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications	rev/min	Setting point rev/min	Control rod travel mm	Test specifications	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
/00	19,2-20,9	700	20,0	9,7 4,0	1195-1205 1220-1250	300	7,0	100 300	min.8,5 6,9-7,1	1150 800 1020 1050	10,7-10,8 11,6-11,8 11,5-11,7 11,2-11,4
VH= max.46°				1350	0-1,0				340-380= 2,0		

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm	
1	2	3	4	5	6	7	8	
LDA 800	0,9 bar 138,0-140,0 (135,0-143,0)	-	LDA 1150	0,9 bar 121,0-125,0 (118,0-128,0)	100	115,0-140,0		
LDA 1025	0,9 bar 134,0-138,0 (131,0-141,0)		LDA 500	0 bar 85,0-89,0 (82,0-92,0)				

Checking values in brackets

9.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel- diminution mm (1)
PE10P..LS3073 with . PA535	0,55		0,90		11,2-11,3
			0		11,6-11,7
			0,39		9,4-9,5
					10,1-10,3

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 i

1. Edition

En

PE 10A 95D 610/4LS 2448 RQV 300-1250 AB 1105L-

1-10-9 -4- 3 - 6 - 5 -8 - 7 - 2
0-27-72-99-144-171-216-243-288-315 ± 0,50° (-0,75°)

supersedes

company KHD

engine BF 10L 413 F
294 kW (400 PS)
bei 2500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(1,75-1,95)

Port closing at prestroke

1,80-1,91

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,3-11,4	11,4-11,6	0,3(0,6)			
300	6,1-6,3	1,1-1,7				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Lower rated speed Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	Sliding sleeve travel rev/min 10	mm 11
max.	1300	15,2-17,8	-	-	-	ca. 13	100 300 675-735 = 2,0	min. 7,7 6,1-6,3 = 2,0	250 600 950 1250	0,5-0,8 2,9-3,2 4,8-5,1 7,6
ca. 65	10,3 4,0 1500	1290-1300 1360-1390 0 - 1,0				320-400				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2	Rotational-speed limitation intermediate speed 3	Fuel delivery characteristics high idle speed 5a	Starting fuel delivery Idle switching point 6	Torque-control travel Control rod travel 8
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 6	rev/min 8
LDA 1250	0,8 bar 113,5-115,5 (111,5-117,5)	1290-1300*	LDA 900 LDA 1100 LDA 500	11,3 11,5 11,6
			0,8 bar 116,0-121,0 0 bar 68,0-71,0	1250 1100 900
			129,0-139,0 220 (80-240) Magnet 24 V	11,3 11,5 11,6

Checking values in brackets

* 1 mm less control rod travel than col. 2

Checking Page 2.

9.32

BOSCH

Geschäftsbericht KH Kundendienst Kfz-Ausrüstung
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G12

D. Adjustment Test for Manifold Pressure Compensator

Test at $n =$ 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel- mm	diminution (1) difference
2448 with 105 L	0,8 bar					
			0,565		11,6 - 11,7	
			0,430		11,0 - 11,1	
			0		10,1 - 10,3	
					9,3 - 9,4	

Notes

(1) when $n =$

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Checking values

900 1/min 0,8 bar (117,0 - 124,0)

1100 1/min 0,8 bar (114,0 - 123,0)

500 1/min 0 bar (66,0 - 73,0)

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 12,7c1

1. Edition

En

supersedes -
 company KHD
 engine BF 8 L 413 F
 235 kW (320 PS)

PE 8 MW 100/720 LS 1010
RQ 300/1250 MW 32
O 403 548 004

$$1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 \\ 0 \quad -45 \quad -90 \quad -135 \quad -180 \quad -225 \quad -270 \quad -315 + 0,50 \quad (0,75)$$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10-3,20
(3,05-3,25) mm (from BDC) RW 9,0-12,0

Rotational speed rev/min		Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6	
1250	12,2+0,1	13,0 - 13,2	0,35(0,6)				
300	6,4-6,6	1,25 - 1,65	0,35(0,55)				
850	12,7+0,1		0,5 (0,7)				
500	9,7+0,1		0,35(0,6)				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Control rod travel mm	Test specifications		Control rod travel mm	Control rod travel mm
		1	2	3	4			5	6		
600	19,2-20,8	60	20,0	11,2	1295-1310	300	6,5	100	8,1	850	12,7+0,1
1500	0 - 1,0	VH =	46°	4,0	1345-1375			300	6,4-6,6	950	12,4+0,2
								375-415	= 2,0	1200	12,2+0,1
										1250	12,2+0,1

Torque-control travel
on flyweight assembly dimension a =

200

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		(2)	Control rod stop	(3a)	Fuel delivery characteristics		(3b)	Starting fuel delivery Idle speed		(6)
rev/min	cm ³ /-1000 strokes		rev/min		rev/min	cm ³ /-1000 strokes		rev/min	cm ³ /1000 strokes / mm	Control rod travel
1	2		3		4	5		6	7	
LDA 1250	0,7 bar 130,0-132,0 (128,0-134,0)				LDA 850	0,7 bar 130,5-134,5 (128,5-136,5)		100	136,5-146,5 (133,5-149,5),	
					LDA 500	0 bar 84,5-86,5 (82,5-88,5)				

Checking values in brackets

9 82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting		Measurement		Control rod travel- diminution difference
	Gauge pressure =	bar	Gauge pressure =	bar	mm (1)
Ppe.LS1010 RQ..MW32	0,7 bar				12,7 - 12,8
			0,3		11,9 - 12,0
			0,23		10,4 - 10,6

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP001/4 SCL 7,4a
1. Edition

En

PES6A95D410RS2614

RSV325-1100A1B2177L

supersedes
company:
engine:

-
Schlüter
SDMT 112 W6
Schlepper
110kW (150PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,75-1,95)

mm (from BDC) bei 9,0-12,0mm RW

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	12,5+0,1	10,4-10,6	0,3(0,6)			
325	8,7-8,9	2,4- 3,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
loose	800	0,3-1,0 $\times=3,75$	-	-	-	approx.	325	8,3	1100	12,5+0,1
approx.						22			500	13,1+0,1
55	11,5	1140-1150					100	min. 19,5	825	12,7+0,2
5	4,0	1215-1245					325	8,7-8,9		
	1380	0,3-1,7					545-605=2,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F) rev/min	cm³/1000 strokes	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
LDA 1100	0,7 bar 104,0-106,0 (102,0-108,0)	1140-1150*	LDA 700	0,7 bar 108,5-111,5 (106,5-113,5)	100	179,5-189,5 bei 19,5 - 21,0mm RW	-	-
			LDA 500	0 bar 73,5-76,5 (71,5-78,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2
10.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm	(1)
PES6A..RS2614 with.A1B2177L	0,35	0,70 0 0,16	12,4-12,5 13,1-13,2 11,0-11,1 11,5-11,7	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 9,6 h

1. Edition

En

PE 6 A 95 D 410 LS 2450 RQ 300/1250 AB 1046 DL

1 - 6 - 5 - 4 - 3 - 2
0 -75 -120-195-240-315° ±0,5°(±0,75°)

supersedes -
 company KHD
 engine F 6 L 413 F
 (1) 130 kW(176 PS)
 bei 2500 min
 (2) 141 kW(192 PS)
 bei 2500 min
 (3) 120 kW(163 PS)
 bei 2500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
 Port closing at prestroke (1,95-2,15)
 2,00-2,10 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	9,5-9,6	8,5 - 8,8	0,3(0,6)			
300	5,9-6,1	0,9 - 1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Control rod travel rev/min	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min
	1	600	15,6-16,4	600	16,0	8,5	1295-1310	300	6,0	100	min. 7,5
						4,0	1335-1365			300	5,9-6,1
									350-390=	2,0	965
									450	max. 1,0	600
											10,1-10,2

Torque-control travel
on flyweight assembly dimension a = 0,3 mm

Speed regulation At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed		Control rod travel	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes / mm	
1250	85,0 - 87,5 (83,0 - 89,5)		600	1000	85,0 - 88,0 (83,0 - 90,0)		100	120,0 - 130,0		
				700	86,5 - 89,5 (84,5 - 91,5)					

Checking values in brackets

9.82

B. Governor Settings

(2) KHD 9,6 h

- 2 -
2

Checking of slider		Full-load speed regulation						Idle speed regulation						Torque control	
PRG check		Setting point		Test specifications		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11	12				
600	15,6-16,4	600	16,0	8,9	1295-1310	300	6,0	100	min. 7,5	1250	9,9-10,0				
			4,0		1340-1370			300	5,9-6,1	1080	10,0-10,3				
								350	390=2,0	965	10,3-10,5				
								450	max. 1,0	600	10,5-10,6				

Torque control travel
on flyweight assembly dimension a =

0,3 mm

Speed regulation A 1295-1310 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics				Starting fuel delivery idle speed		Control rod travel		
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm	
1	2	3		4	5	6		7	8	9	10	
(2)												
1250	91,5-93,5 (89,5-95,5)			600	1000	91,0-94,0 (89,0-96,0)		100	120,0-130,0			
					700	91,5-94,5 (89,5-96,5)						

Checking values in brackets

Testoil-ISO 4113

(3)

B. Governor Settings

Checking of slider		Full-load speed regulation						Idle speed regulation						Torque control	
PRG check		Setting point		Test specifications		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11	12				
600	15,6-16,4	600	16,0	8,0	1295-1310	300	6,0	100	min. 7,5	1250	9,0-9,1				
			4,0		1320-1350			300	5,9-6,1	1080	9,1-9,4				
								350-390	=2,0	965	9,4-9,6				
								450	max. 1,0	600	9,6-9,7				

Torque control travel
on flyweight assembly dimension a =

0,3 mm

Speed regulation A 1295-1310 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics				Starting fuel delivery idle speed		Control rod travel		
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm	
1	2	3		4	5	6		7	8	9	10	
(3)												
1250	81,5-83,5 (79,5-85,5)			600	1000	77,5-81,5 (75,5-83,5)		100	120,0-130,0			
					800	78,5-82,5 (76,5-84,5)						

② **Test Specifications
Fuel Injection Pumps
and Governors**

40

WPP 001/4 DAF 6,2 k

6. Edition

En

PE 6 A 85 D 320 RS 2546

RQ 250/1300 AB 1023 R
EP/RSV 250-1300 A 1 B 2025 R

supersedes 12.80
DAF
company DF 615
engine

See service Information VDT-I-DAF 004

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25
(2,10-1,30) RW mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	10,4+0,1	5,5 - 5,6	0,3(0,45)			6
250	8,1-8,3	1,5 - 2,0	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings Port closing difference between control-rod travel 9
and max. = 3,0-4,0°.

Checking of slider Control rod travel rev/min mm	Full load speed regulation				Idle speed regulation				Torque control	
	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Control rod travel rev/min mm	Control rod travel rev/min mm
550 19,6-20,4	550 20,0	9,4	1345-1360	250 6,5	100 min. 9,7	-	-	-	-	-
VH max. = 46°		4,0	1425-1455		250 8,1-8,3					
		1500	0 - 1,0		300-370 =2,0					
					400 max. 1,0					

Torque-control travel
on flyweight assembly dimension a = mm 1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/100 strokes	
1000	55,0-56,0 (53,0-58,0)				100	113,5-123,5 19,5-21,0 mm RG	

Checking values in brackets

8.82

B. Governor Settings

EP/RSV..2025 R

1A

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800 X = 4,0	0,3-1,0				ca.21	250	5,5		+0,1
ca.67	9,2 4,0 1550	1340-1350 1380-1410 0,3 - 1,7					250	5,9-6,1	1000 500 250	10,2 10,3 10,6

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit	③a) Fuel delivery characteristics		Starting fuel delivery Idle		⑤a) Idle stop	
Test oil temp 40°C (104°F)	rev/min	Note changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
	2	3	4	5	6	7	8	9
1000	55,0-56,0 (53,0-58,0)	1340-1350*			100	113,5-123,5 19,5 - 21,0 mm B		

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
5										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit	③a) Fuel delivery characteristics		Starting fuel delivery Idle		⑤a) Idle stop	
Test oil temp 40°C (104°F)	rev/min	Note changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8

Checking values in brackets

* 1 mm less control rod travel than col 2

En

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 6,0 g

6. Edition

En

PES 6 MW 100/320 RS 1004

supersedes 5.82

RQV 300 ... 1400 MW 6 R

company: Volvo

Komb. 0 403 446 104

engine: TD 60 B

1 - 5 - 3 - 6 - 2 - 4 = 0 - 60 - 120 - 180 - 240 - 300 \pm 0,50 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8 - 2,9 (2,75-2,95) mm (from BDC) bei RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	10,6+0,2	8,35 - 8,55	0,35(0,6)			
300	5,2-5,4	0,93 - 1,35	0,35(0,55)			
500			0,5 (0,7)			
1400			0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1
1	2	3	2a	4	5	6	7	8	9	10	11
approx. 68	1400 1700	15,2-17,8 0,0-1,0					8-16	100 300 420-480 = 2,0	mind. 7,0 5,2-5,4	1440- 1450 = 8,2	
64 \pm 4	10,7 4,0	1440-1450 1550-1580								430- 500 = 2,8 300 1,3-1,4	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	2b	4a	5a 5b	6	5
1	2	3	4	5	6	8
LDA 1000	0,67 bar 83,5-85,5 (81,5-87,5)	1440-1450*	LDA 1400 LDA 500	0,67 bar 85,0-89,0 (83,0-91,0) 0 bar 48,0-50,0 (46,0-52,0)	100 300	mind. 120 9,3-13,5 (7,0-16,0)

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

D. Adjustment Test for Manifold Pressure Compensator

Test at $n =$ 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel-diminution difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
Ppe. RS1004 with MW 6 R	0,67	0,21	10,6 - 10,8
		0,27	9,7 - 9,9
			10,3 - 10,5

Notes

(1) when $n = 500$ rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

② Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 SCA 11,0u2

2. Edition

En

Testoil-ISO 4113

PE 6 P 120 A 720 RS 7001 RQ 250/1000 PA 615

supersedes 5.81
company Scania
engine DN 11
151 kW (205 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

* from FD 141: 5,0 - 5,1
Port closing at prestroke (4,95-5,15)

mm (from BDC)

to FD 052: 4,4 - 4,5 mm
(4,35-4,55)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	11,3+0,1	18,6 - 18,7	0,5(0,9)			3,3 ± 0,1 **
250	4,0-4,2	0,9 - 1,3	0,5(0,8)			(3,0 - 3,5)

Adjust the fuel delivery from each outlet according to the values in

** Due to smoothing of the sealing edge, the spring tension with a new
delivery-valve holder must be adjusted to 3,0 - 3,1 mm.

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel rev/min	Control rod travel mm	Setting point		Test specifications		Control rod travel mm	Setting point		Test specifications		Control rod travel mm
		rev/min	Control rod travel mm	rev/min	Control rod travel mm		rev/min	Control rod travel mm	rev/min	Control rod travel mm	
600	15,6-16,4	600	16,0	10,3	1045-1060	250	4,1	100	min. 5,6	-	-
				4,0	1105-1135			250	4,0-4,2		
								300-340=2,0mm			

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation A 1045 - 1060 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/100 strokes	
1	2	3	4	5	6	7	
1000	185,0 - 187,0 (182,0 - 190,0)	-	600	166,0 - 170,0 (163,0 - 171,0)	100	240,0 - 290,0 20-21 mm RW	

Checking values in brackets

10.82

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 UNI 9,6 a
3. Edition

PES6P110A720RS3105

RQV275-1150PA642

En

supersedes 9,82
company IVECO-UNIC
engine 8220-22
176 kW (239 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,2-3,3

Port closing at prestroke

(3,15-3,35)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,7+0,1	10,0-10,2	0,4(0,8)			
275	5,3-5,5	0,9- 1,5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
			1a	2a	4	5	6	7	8	9
max.	1190	15,2-17,8	-	-	-	approx	100	min. 6,9	225	0,4-0,7
approx. 60	10,7 4,0 1400	1190-1200 1280-1310 0-1,0				11	275	5,3-5,5	535 840 1150	3,5-3,8 5,2-5,5 8,0

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	4a	5a	6	5
1150	0,7 bar 100,0-102,0 (97,0-105,0)	1190-1200 *	LDA 400	0 bar 87,0-89,0 (84,0-92,0)	100	160,0-180,0

Checking values in brackets

* 1 mm less control rod travel than col 2

10.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement		Control rod travel-dimension difference (1)
		Gauge pressure =	bar	
PES6P..RS3105 with PA 642	0,23	0,70 0 0,21	bar	mm
				11,3-11,4 11,7-11,8 10,5-10,6 10,8-11,0

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 9,7 n

3. Edition

En

PES 6 A 95 D 410 RS 2128

RQ 200/1100 AB 860 DL

supersedes 8.82
 company RABA u. Dae Woo
 engine D 2156 MTN 5
 188 kW (256 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,95-2,05
(1,90-2,10) mm (from BDC) at RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,3+0,1	12,7-12,9	0,3 (0,6)			
200	5,9-6,1	0,9-1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min
600	19,2-20,8	600	20,0	11,3 4,0	1145-1160 1195-1225	200	6,0	100 200 310-350 = 2,0	min. 7,4 5,9-6,1	1100 600 1015 1070	12,3-12,4 12,8-12,9 12,6-12,8 12,3-12,6

Torque-control travel
on flyweight assembly dimension a = 0,2 mm Speed regulation At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	rev/min	cm³/-1000 strokes	Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
			rev/min	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
LDA 1100	0,7 bar 126,5-128,5 (124,5-130,5)		200		LDA 800 LDA 500	0,7 bar 131,0-134,0 (129,0-136,0) 0 bar 81,5-85,5 (79,5-87,5)	100	151,5-161,5 bei 16,2-16,8 mm RW

Checking values in brackets

10.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel: mm (1)	diminution difference
	Gauge pressure = bar	Gauge pressure = bar		
PES6A..RS2128 with .AB860DL	0,25	0,70	12,1 - 12,2	
		0	12,8 - 12,9	
		0,17	10,1 - 10,3	
			10,8 - 11,0	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

(2) Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4MB T2,8 e

5. Edition

En

PE 8 P 100 A 320 LS 810 RQ 300/1150 PA 187 R (1)
 RQV300-1150 PA 227 R (2)
 RQV350-1250 PA 251 R (3)

supersedes 4.80
 company: Daimler-Benz
 engine: OM 402
 (3) 188 kW (256 PS)

1-8-7-2-6-3-5-4 je $45^\circ \pm 5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113**A. Fuel Injection Pump Settings**3,4-3,5
Port closing at prestroke (3,35-3,55) mm (from BDC) 1. 8

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes (1 u. 2)	Difference cm ³ / 100 strokes (4)	Control rod travel mm	Fuel delivery cm ³ /100 strokes (3)	Spring pre-tensioning (torque-control valve) mm
1150	10,3+0,1	10,0-10,2	0,3(0,6)	11,0+0,1	10,1-10,3	n = 1230
	7,5-7,7	1,4-2,2	0,3(0,5)	7,8-8,0	1,5-2,1	n = 350

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min mm	Full-load speed regulation						Idle speed regulation				Torque control	
	Setting point		Test specifications		Control rod travel rev/min mm	Setting point	Test specifications		Control rod travel rev/min mm			
1	3	4	5	6		7	8	9	10	11	12	3
650	13,8-14,6	650	14,2	9,3	1195-1210	300	7,5	100	min. 9,1	-	-	
			4,0		1235-1265			300	7,4-7,6			
			1400		0 - 1,0			405-445=	2,0			

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At

1195-1210 min⁻¹1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm	rev/min
1150	100,0-102,0 (98,0-104,0)		500	600	82,0-87,0 (80,0-89,0)		100	110,0-130,0

Checking values in brackets

10.82

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Importé en République Fédérale d'Allemagne par Robert Bosch GmbH

B. Governor Settings

RQV..227 R (2)

MB 12,8 e

-2-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm
1	2	3		4	5	6		7	8	9		10	11
max.	1150	15,2-17,8		-	-	-		ca. 12	100	min.9,0		300	0,4-1,5
ca. 62	9,3	1190-1200						360-390	300	7,4-7,6		500	2,6-3,2
	4,0	1260-1290										1000	5,7-6,1
	1350	0 - 1,0										1250	8,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	6	rev/min	cm³/1000 strokes	5	Control rod travel mm
1	2	3		4	5	6	7	8	9	
1150	102,0-104,0 (100,0-106,0)	1190-1200*	600		82,0-87,0 (80,0-89,0)	100	110,0-130,0			-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

RQV..PA 251 R (3)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm
1	2	3		4	5	6		7	8	9		10	11
max.	1250	15,2-17,8		-	-	-		ca. 20	100	min.8,5		1285	8,3
ca. 66	9,9	1280-1290							350	6,9-7,1			
	4,7	1350-1380							710-770	= 2,0			
	1500	0 - 1,0											

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	6	rev/min	cm³/1000 strokes	5	Control rod travel rev/min
1	2	3		4	5	6	7	8	9	
1230	101,0-103,0 (99,0-105,0)	1280-1290*	1230		78,0-80,0 (76,0-82,0)	100	110-130,0			-

** Reduced-delivery stop

* 1 mm less control rod travel than col. 2

Checking values in brackets

En

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,8f

3. Edition
En**Testoil-ISO 4113**

PE 6 P 110 A 720 RS 371

RQ 300/1100 PA 424 R

supersedes 4.80
company Daimler Benz
engine OM 355 A
(207 kW) 280PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,80-2,90
(2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	5
1100	11,7+0,1	15,7 - 15,9	0,4(0,8)			
	6,1-6,3	1,4 - 2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
650	19,2-20,8	650	20,0	10,7	1145-1160	300	6,2	100	min.8,2	1100	11,7-11,8
1100	Abregel- beginn	VH ca.	30°	4,0	1195-1225			300	6,1-6,3	650	11,7-11,9
1350	0 - 1							375-415 = 2,0			

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min		rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
1	2	3		4	5	6	7
LDA 1100	0,7 bar 157,0 - 159,0 (154,0 - 162,0)			LDA 1100	0 bar 142,0 - 144,0 (139,0 - 147,0)	100	140,0 - 160,0 100-220 (80-240)

Checking values in brackets

10.82

H7

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure
XXXXXX

Pump/governor	Setting	Measurement		Control rod travel-dimension difference	
		Gauge pressure	bar	Gauge pressure =	bar mm (1)
371 with 424 R	0,70			0,39	11,7 - 11,8
				0,35	11,5 - 11,6
				0	11,2 - 11,3
					11,0 - 11,1

Notes

(1) when n

rev/min and
gauge pressure =

bar (- maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6 i 7

1. Edition

En

PE 6 P 120 A 320 RS 372 - 1 y RQ 250/1100 PA 417 R

supersedes
company DAF
engine DK 1160
243 kW (330 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8 - 2,9$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	11,4+0,1	20,4-20,8	0,5(0,9)			
250	6,2-6,4	1,1-1,5	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation						Idle speed regulation						Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	11	Control rod travel mm	12	3	Control rod travel mm	
700	15,6-16,4	700	16,0	10,4 4,0 1350	1135-1150 1200-1230 0-1,0	250	6,3	100 250 440-480=2,0	min.7,4 6,2-6,4	850 1100	11,4-11,5 11,3-11,5				

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1135-1150 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		2	Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed		6
			rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	6	
LDA 850	0,7 bar 204,0-208,0 (201,0-211,0)		-			LDA 600	0 bar 139,0-143,0 (136,0-146,0)	100	315,0-355,0 bei 19,5-21,0 mm RW

Checking values in brackets

10.82

H9

BOSCH

Geschäftsbericht KH Kundendienst Kfz Ausrüstung
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 Importeur für Belgien und Luxemburg: Robert Bosch GmbH, Stuttgart

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting		Measurement		Control rod travel-mm	diminution difference (1)
	Gauge pressure =	bar	Gauge pressure =	bar		
PE 6 P ..RS 372-ly with .. PA 417 R	0,37		0,70 0 0,3		11,4 - 11,5 10,0 - 10,1 11,0 - 11,1 10,5 - 10,7	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 v 10

1. Edition

En

PES 6 A 90 D 410 RS 2596

RQV 300-1400 AB 1120-1L

supersedes

compa**Daimler-Benz**

engine OM 352 A

124 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque control valve) mm
1400	2	3	0,3 (0,45)	2	3	6
	11,9+0,1	7,4 - 7,5				
300	8,9-9,1	0,9 - 1,5	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	1
1	2	3	2a	4	5	6	4	7	8	9	3	10
max.	1500	15,2-17,8		-	-	-		approx 19	100	min. 10,5	250	
approx. 63	10,9 4,0 1750	1440-1450 1570-1600 0 - 1,0						590-660	300	8,9-9,1	630 1020 1400	
							3a					

Torque control travel a = mm

Set stop at 3,0-3,5 mm control rod travel.

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point	Torque-control travel	
rev/min	cm³/1000 strokes	4a	5a	5b	6	7	5
1	2	3	4	5	6	7	8
LDA 1400	0,7 bar 73,5-74,5 (71,5-76,5)	1440-1450*	LDA 500 LDA 500	0,7 bar 68,5-70,5 (66,5-72,5) 0 bar 56,0-58,0 (54,0-60,0)	100	71,0-81,0 15,8- 16,2 mm RW	1400 500 1000 1200
							11,9+0,1 13,1+0,1 12,7+0,2 12,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- mm (1)	diminution difference
PES6A..RS2596 with..AB1120-1L		0,70 0 0,20	13,1 - 13,2 12,0 - 12,1 12,9 - 13,0 12,3 - 12,5	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 v

8. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2596

RQV 300-1400 AB 1066 DL

superseded 2.82

company Daimler-Benz

engine: OM 352 A
124 kW (168 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1400	11,9+0,1	7,3 - 7,4	0,3(0,45)			
	300	8,9-9,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
	rev/min	Control rod travel mm	Control rod travel rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Control rod travel rev/min	rev/min	mm
max.	1500	15,2-17,8		-	-	-	approx 19	100	min.10,3	250	0,7-0,9	
approx. 63	10,9 4,0 1750	1440-1450 1570-1600 0-1,0					560-620	300	18,7-8,9	630 1020 1400	3,8-3,9 5,3-5,5 7,7	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	Control rod travel mm
1400	0,7 bar 73,5 - 74,5 (71,5 - 76,5)	1440-1450*	LDA 500 LDA 500	0,7 bar 68,5 - 70,5 (66,5 - 72,5) 0 bar 56,0 - 58,0 (54,0 - 50,0)	100 100 RW= 15,8-16,2 mm Set stop at 3,0-3,5 mm control rod travel.
				71,0 - 81,0 12,7+0,2 12,1+0,3	1400 500 1000 1200

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement		Control rod travel-diminution difference			
		Gauge pressure =	bar	Gauge pressure =	bar	mm	(1)
RS 2596 with AB 1066 DL	0,7					13,1 - 13,2	
				0,35		12,9 - 13,0	
				0,20		12,3 - 12,5	
				0		11,9 - 12,0	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full load control rod travel)

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 DAF 11,6 i
4. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 320 RS372

RSV 250-1100 P 5/458R

supersedes 581
company DAF
engine DKTD 1160

See service Information VDT-I-DAF 004

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,80-2,90
(2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	12,0-12,1	13,6 - 13,8	0,4(0,8)			
250	6,6-6,8	0,7 - 1,1	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	① Upper rated speed rev/min		Intermediate rated speed			④ Control lever deflection in degrees 7	② Lower rated speed rev/min		③ Torque control rev/min	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		8	9	10	11
loose	800	0,3-1,0				aprox. 21	250	6,2	400	12,2-12,3
	X = 3,5						250	6,6-6,8	300	12,4-12,9
approx. 51	1140-1150 = 11,0						640 - 700 = 2,0			
2a	1275-1305 = 4,0									
	1425 0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat Note changed to rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤	④a Idle stop Control rod travel mm	
rev/min	cm³/1000 strokes	3	4	5	6	7	8	9	
LDA 850	0,7 bar 136,0 - 138,0 (133,0 - 141,0)	1140-1150*	LDA 600	0 bar 126,0 - 129,0 (123,0 - 132,0)	100	24 ,0-285,0			
					250	7,0-11,0			

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing pressure - in bar gauge pressure
 XXXXXXXX

Pump/governor	Setting	Measurement	Control rod travel-dimension difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
372 with 458R	0,70	0,30 0,26 0	12,0-12,1 11,8-11,9 11,5-11,7 11,4-11,5

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 PEN 7,0 c

5. Edition

En

PE 6 P 100 A 320 RS 291 EP/RSV 200-1200 P 1/305R
RS 291 EP/RSV 200-1000 P 1/305R

supersedes 5.79
company Volvo-Penta
engine MD 70 B

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8 + 0,1$ mm (from BDC) $(+0,15)$
 $(-0,05)$

Rotational speed rev/min	Control rod travel mm	Fuel delivery		Difference cm³/100 strokes	Control rod travel mm	Fuel delivery	Spring pre-tensioning (torque-control valve) mm	
		rev/min	cm³/100 strokes					
1000	12	12,7 - 13,5		0,6			$2,5 + 0,1 **$ (max. 2,2-2,9)	
	15	17,1 - 18,8						
	9	3,8 - 4,8						

Adjust the fuel delivery from each outlet according to the values in

**

B. Governor Settings

200-1200

① Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
approx. 68	1200	16,0	without auxiliary spring	approx. 25		approx. 25	200	6,0	1200	0
	1260	10,4					100	19 - 21	250	1,2-1,8
	1320	4,0					200	5,7-6,3		
②a	1260	9,0-11,4					270	1,8-3,8		
	1320	1,8- 5,3					350	0 - 1		
	1380	0,3- 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)	rev/min	cm³/1000 strokes	⑥ Rotational-speed limitat Note changed to rev/min	③a Fuel delivery characteristics	rev/min	cm³/1000 strokes	Starting fuel delivery idle	⑤ Idle stop	④a Idle stop	
									rev/min	cm³/1000 strokes
700	68,0 - 70,0	1240-1250*					100	190 - 230		
							225	11 - 15 Dispersion max. 2,5) **		

Checking values in brackets

In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

* 1 mm less control rod travel than col. 2

10.82

BOSCH

Geschäftsbericht Kfz Kundendienst Kfz Ausrüstung
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B. Governor Settings

200-1000

1 Upper rated speed rev/min			Intermediate rated speed			4 Control-lever deflection in degrees		Lower rated speed rev/min		3 Torque control rev/min	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	7	8	9	10	11	
1	2	3	4	5	6	7	8	9	10	11	
approx. 53	1000 1050 1100	16,0 10,8 3,9				approx. 22	200	6,0	980	0	
(2a)	1060 1100 1160	8,1-10,6 2,0- 6,0 0,3- 1,0	without auxiliary spring				100 200 260 340	19 - 21 5,7-6,3 2,5-4,0 0 - 1	240	1,2-1,8	
			with auxiliary spring								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop	
Test oil temp. 40°C (104°F)	Note: changed to ...) rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	Control rod travel mm
rev/min	cm³/1000 strokes	3	4	5	6	7	8	9	10
700	95,0 - 97,0	1040-1050*			100	190 - 230			
					225	11 - 15			
					Dispersion max. 2,5**				

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Control-lever deflection in degrees		Lower rated speed rev/min		3 Torque control rev/min	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	7	8	9	10	11	
1	2	3	4	5	6	7	8	9	10	11	
(2a)											

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop			
Test oil temp. 40°C (104°F)	Note: changed to ...) rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	6	7	8	Control rod travel mm	9
rev/min	cm³/1000 strokes	3	4	5	6	7	8	9	10		

Checking values in brackets

En

* 1 mm less control rod travel than col. 2

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 k

3. Edition

En

PES 5 A 95 D 410 LS2543
..LS2543Y

RQV 250-1100 AB1038DL (1)
250-1100 Ab1038DL (2)

1 - 3 - 5 - 4 - 2 + 0,50°
0 - 72 - 144 - 216 - 288° (- 0,75°)

supersedes 9.78

company: M A N

engine: D2565 M/MF/MFSV

(1-141kW-192PS-Nr.7936)

(2-137kW-186PS-Nr.7959)

Saviem - 7018

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,50-1,60
(1,45-1,65) mm (from BDC) cyl. 5

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	11,0+0,1	11,2 - 11,4	0,3 (0,6)			
250	5,9-6,1	0,9 - 1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..2543 mit ..1038L (1)

Upper rated speed Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel rev/min	Intermediate rated speed			Lower rated speed Degree of deflection of control lever	rev/min Control rod travel mm	Sliding sleeve travel rev/min mm		
			1a	2a	4					
approx. 50	1150 1300	14,4-17,6 0 - 1	-	-	-	approx. 13	100 250 315-375 = 2,0 450	min. 7,5 5,9 - 6,1 = 2,0 0 - 1	250 700 1140	0,5-1,2 4,3-4,6 8,3
approx. 42	10,0 4,0	1140-1150 1175-1205				3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics 5a high idle speed 5b		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	4a	5	6	8
1	2	3	4	5	6	8
(1) 1100	112,5-114,5 (110,5-116,5)	1140-1150*	750 500	108,0-111,0 (106,0-113,0) max. 111,5 (113,5)	100 250	149 - 159 6,0 mm RW

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel					
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm	1
1	2	3	2a	4	5	6	4	7	8	9	3	10	11	1
approx. 50	1150	14,4-17,6	-	-	-	-	approx. 13	100	min. 7,5	200	0,5-1,2	700	4,3-4,6	
	1300	0 - 1						250	5,9-6,1	1140	8,3			
approx. 42	10,0	1140-1150					(3a)	315-375 = 2,0	450	0 - 1				
	4,0	1175-1205												

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel			
rev/min	cm³/1000 strokes	1	2	3	4	5	6	7	8	9	Control rod travel mm	1
(2) 1100	110,5-112,5 (108,5-114,5)		1140-1150*		750	106,5-109,5 (104,5-111,5)	100	149 - 159	1100	11,0		
					500	max. 109,5 (111,5)	250	6,0 mm RW	800	11,4		
									500	11,4		

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel					
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm	1
1	2	3	2a	4	5	6	4	7	8	9	3	10	11	1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel			
rev/min	cm³/1000 strokes	1	2	3	4	5	6	7	8	9	Control rod travel mm	1

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 HAN 10,8 a 1

6. Edition

En

Testoil-ISO 4113

PE 6 A 95 D 320 RS 2364 EP/RSV 350-1100 A8 B1070R
 RS 2557 A8 B1127R

supersedes 2.81
company MF-Hanomag
engine D 963 A1

**Test cold-start device according to VDT-I-DAF 004
Check page 2.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 mm (from BDC)
(2,10-2,30)

Rotational speed rev/min	Control rod travel mm	Fuel delivery 2364 cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery 2557 cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	13,5	13,5 - 13,8	0,3 (0,6)	13,2	12,4 - 12,5	n 1100
	+0,1			+0,1		
	350	6,7-6,9	0,3 (0,5)	6,6-6,8	1,4 - 2,0	n 350
500	- - - -	C, 4-5	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed 4 5 6	④ Lower rated speed Control-lever deflection in degrees	Control rod travel mm	③ Torque control Control rod travel rev/min
1	2	3	8	9	10	11
loose	800	0,3-1,0		approx. 24	350	480
	x =	5,5			100	13,5-13,6
	57	12,5 1140-1150			350	min. 19
approx. 57	4,0	1205-1235		435-495	5,9-6,1	400
	1380	0,3 - 1,7			=2,0	13,8-14,2
2a				600	0 - 1	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F) rev/min	⑥ Rotational-speed limitat Note changed to rev/min	③a Fuel delivery characteristics rev/min	Starting fuel delivery Idle rev/min	⑤ Idle stop Control rod travel mm				
1	2	3	4	5	6	7	8	9
1100	134,0 - 136,0 (132,0 - 138,0)	1140-1150*	500	131,0 - 134,0 (129,0 - 136,0)	100	20-20,5 mm RW **		

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

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B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Control-lever deflection in degrees		Lower rated speed rev/min		3 Torque control rev/min	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	7	8	9	10	11	
loose approx. 50	800	0,3-1,0	approx. 19			350	62	1100	13,2-13,3	13,2-13,4	
	x = 5,5					100	min. 19,5	450	13,2-13,4	400	
	12,2 = 1140-1150	350				6,6-6,8	470-530 = 2,0	13,5-13,9			
2a	4,0 = 1220-1250										
	13 0 = 0,3-1,7										

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop			6 Rotational-speed limitat.		3a Fuel delivery characteristics			Starting fuel delivery		5	4a Idle stop
rev/min	cm³/1000 strokes	3	Note: changed to ...)	rev/min	4	cm³/1000 strokes	6	cm³/1000 strokes	7	rev/min	Control rod travel mm
1100	124,0 - 125,0 (122,0 - 127,0)	1140-1150*		500		121,0 - 124,0 (119,0 - 126,0)	100	20-20,5 mm RW**			

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Control-lever deflection in degrees		Lower rated speed rev/min		3 Torque control rev/min	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	7	8	9	10	11	
2a											

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop			6 Rotational-speed limitat.		3a Fuel delivery characteristics			Starting fuel delivery		5	4a Idle stop
rev/min	cm³/1000 strokes	3	Note: changed to ...)	rev/min	4	cm³/1000 strokes	6	cm³/1000 strokes	7	rev/min	Control rod travel mm

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 o

1. Edition

En

PE 8-P 120 A 320 LS 3816 RQV 350-1150 PA 590
1 - 8 - 7 - 2 - 6 - 3 - 54 je $45^\circ \pm 0,5^\circ (+ 0,75^\circ)$

Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

supersedes

company Daimler Benz

engine OM 422 A

243 kW (330 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

4,0 - 4,1

(3,95-4,15)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1150	11,0+0,1	15,8-16,0	0,5(0,9)			
	300	4,9-5,1	1,2-1,8	0,8(1,2)		

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1
1	2	3	2a	4	5	6	4	7	8	9	3
max.	1150	15,2-17,8		-	-	-		approx	100	min.6,0	300
approx.	10,0	1190-1200						10	350	4,5-4,6	580
63	4,0	1270-1300									870
	1400	0 - 1,0							370-480		1150
								3a			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	5a	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	5a	6	7	8	9
LDA 1150	0,7 bar 158,0-160,0 (155,0-163,0)	1190-1200*	4a	LDA 600 LDA 500	5a (163,0-175,0) 0 bar 140,0-142,0 (137,0-145,0)	100	125,0-145,0	1050 850 750	11,0+0,1 11,4+0,1 11,5+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

D. Adjustment Test for Manifold Pressure Compensator

Test at $n =$ 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel- diminution mm (1)
PE 8 P..LS 3816 with ..PA 590	0,47	0,70 0 0,40	11,4-11,5 11,6-11,7 10,5-10,6 10,9-11,0

Notes.

(1) when $n =$

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 21,9 b

1. Edition

En

PE12P120A320LS3819-1 RQV 350-1150PA493

1 - 5 - 9 - 8 - 3 - 4 - 11 - 10 - 2 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315° ±0,5° (±0,75°)

supersedes

company: Daimler-Benz

OM 424 A

engine 390 kW (530 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

4,0-4,1
Port closing at prestroke (3,95-4,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1 1150	11,1+0,1	15,9-16,1	0,5(0,8)			
2 350	4,8-5,0	1,4 - 2,0	0,8(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

Upper rated speed Degree of deflection of control lever	Intermediate rated speed			Lower rated speed			Sliding sleeve travel rev/min mm
	Control rod travel mm	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	
1 1150	15,2-17,8	-	-	-	approx. 14	100 350	min.8,5 6,9-7,1 870 1150
approx. 64	10,1 4,0	1190-1200 1280-1310			-	400-600	800 580 150
	1375	0-1,0			3a		0,9-1,1 3,5-3,7 5,2-5,4 7,8

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)	Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	Control rod travel mm
1 1150	0,6 bar 159,0-161,0 (156,0-164,0)	1190-1200*	LDA 650 LDA 500	0,6 bar 164,0-170,0 (161,0-173,0) 0 bar 127,0-129,0 (124,0-132,0)

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE12P..LS3819-1 with .PA 493	0,38	0,60 0 0,32	10,8-10,9 11,1-11,2 9,8-9,9 10,1-10,3

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 6,2 i 1

2. Edition

En

PE 6 A 90 D 320 RS 2547

RSV 250-1200 A5B 779 R

supersedes 5.81
 company: DAF
 engine: DT 615

See service Information VDT-I-DAF 004

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,2-2,3
 Port closing at prestroke (2,15-2,35) mm (from BDC) RW 9 /

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	10,8+0,1	7,1 - 7,2	0,3(0,45)			
250	5,9-6,1	0,8 - 1,2	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in _____.

Testoil-ISO 4113**B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx. 22	250	5,5	1000	10,8-10,9
x	= 3,25								400	10,8-11,0
approx. 54	9,8	1240-1250					250	5,9-6,1	300	11,0-11,5
(5)	4,0	1275-1305					330-390=2,0			
	1450	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop		
Test oil temp. 40°C (104°F)	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	9
LDA 1000	0,7 bar 71,0 - 72,0 (69,0 - 74,0)	1240-1250*	LDA 600	0 bar 50,0 - 52,0 (48,0 - 54,0)	100	133,0-143,0 bei 19,5 - 21,0 mm RW			-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Port closing difference between control-rod travel 9 mm and max. = 2.5 - 3.5° camshaft.

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1000 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure
XXXXXX

Pump/governor	Setting	Measurement		Control rod travel-dimension difference (1)
		Gauge pressure =	bar	
.. RS 2547 with RSV .. A5B 779 R	0,7 bar	0,25	bar	10,8 - 10,9
		0,21	bar	10,6 - 10,7
		0	bar	10,1 - 10,4
			bar	9,8 - 10,0

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 h 4

2. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 320 RS 229 Z RQV 250 - 1100 PA 427/2R

supersedes 8.81

company Volvo

engine THD 100TD

177 kW(240PS)

** In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,55-2,75)

Port closing at prestroke

2,60-2,70

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
700	11,4+0,1	13,9 - 14,1	0,4(0,8)			2,5+0,1 ** (max. 2,2-2,9)
	5,8-5,9	1,1 - 1,5	0,3(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	5	6	4	7	8	10	11
max.	1100	15,2-17,8	-	-	-	ca. 13	100	min. 8,0	200	0,7-0,9
ca. 48	10,4 4,0 1350	1160-1170 1240-1270 0 - 1,0	1b 2a 3a	5 6	4	3a	250 325-385=2,0	5,8 -5,9 2,0	500 800 1100	3,0-3,3 5,2-5,5 8,0

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idling speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	Control rod travel rev/min
LDA 700	0,7 bar 139,0-141,0 (135,0-143,0)	1160-1170*	LDA 700	0 bar 117,5-120,5 (114,5-123,5)	100 290,0-340,0 bei 20,0-21,0 mm RW

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure
XXXXXX

Pump/governor	Setting	Measurement		Control rod travel difference XXXXXX (1)	diminution		
		Gauge pressure =	bar	Gauge pressure =	bar	mm	
RS 229 Z with PA 427/2R	0,7			0,33 0,25 0		11,4 - 11,5 11,1 - 11,2 10,4 - 10,5 10,1 - 10,2	

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 q 5

En

2. Edition

PES 6 A 90 D 410 RS 2293

EP/RSV 350-1400 A Q B 788 DL

H = 22,5 mm

supersedes 82

company Daimler-Benz

engine OM 352 A

124 kW (168 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump SettingsPort closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1400	11,3+0,1	7,4 - 7,5	0,3(0,45)			
	350	6,7-6,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
67-70	1400	11,3-11,4	without auxiliary spring	19-21	350	6,8		200 mind.19	1400	+0,1
	1440	1450 = 10,3			350	6,7-6,9		350	650	11,3
5	1475	1505 = 4,0			540-600=2,0	500		540-600=2,0	500	11,3
	1145	ca. 10,3	with auxiliary spring		700	0 - 1		700	500	11,5
	1600	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
LDA 1400	0,7 bar 74,0-75,0 (72,0-77,0)	1440-1450*	LDA 500	0,7 bar 62,0-64,0 (60,0-66,0)	100	13,7-14,3 mm RW		0,5-1,0 before stop

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at $n =$ 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6A.. RS 2293 with .. AOB 788 DL	0,50	0 0,29	10,8 - 10,9 11,1 - 11,2 11,5 - 11,6

Notes

(1) when $n =$

rev/min and

Gauge pressure =

bar (= maximum full-load control rod travel)

Testing the hydraulic start-locking device:

Locking at 0,4 - 0,5 bar

Unlocking at 0,15 - 0,25 bar

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 Vol 10,0 h 3

5. Edition

En

PE 6 P 110 A 320 RS 229Y RQV 250-1100 PA 427/2 R

supersedes 5.82
company: Volvo
engine: THD100D
199 kW(270PS)

**

In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,55-2,75)
2,60-2,70 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,5+0,1	13,0 - 13,2	0,4(0,8)			2,5+0,1** (max.2,2-2,9)
250	6,0-6,2	1,1 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	Control rod travel rev/min 2	Control rod travel mm 3	Intermediate rated speed Degree of deflection of control lever 4	Control rod travel rev/min 5	Control rod travel mm 6	Lower rated speed Degree of deflection of control lever 7	Control rod travel rev/min 8	Control rod travel mm 9	Sliding sleeve travel rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	approx 12	100 250	min. 7,5 6,0-6,2	200 500 800 1100	0,7-0,9 3,5-3,8 5,2-5,5 8,0
approx 46	9,5 4,0 1370	1160-1170 1240-1270 0 - 1,0				3a	325-385=2,0			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2	Rotational-speed limitation intermediate speed 4a	Fuel delivery characteristics high idle speed 5a	Starting fuel delivery idle switching point 6	Torque-control travel Control rod travel mm 5
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	rev/min 8
LDA 700	0,75 bar 130,0-132,0 (127,0-135,0)	1160-1170*	LDA 700	0 bar 111,0-113,0 (108,0-116,0)
			100	290,0-340,0
			250	13,0-17,0 Dispersion max.3

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.32

BOSCH

Geschäftsbericht KH Kundendienst. Kfz-Ausrüstung
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J9

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 XXXXX increasing pressure - in bar gauge pressure
 XXXXX

Pump/governor	Setting	Measurement	Control rod travel dimension difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 229Y with ..PA 427/2 R	0,75	0	10,5-10,6
		0,41	9,5-9,6
		0,36	10,2-10,3
			9,7-9,9

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4

5. Edition

En

PES 6 MW 100/320 RS 1016
RQV 300 - 1300 MW 25-1
Komb. 0 403 446 122
1 - 5 - 3 - 6 - 2 - 4 je 60°

supersedes 5.82
company RVI
engine MIDR06.02-12
125 kW (170 PS)

*Port closing mark 8° after port closing at control-rod travel 10,5 mm.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15)
3,00-3,10 mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,1	9,1 - 9,3	0,35(0,6)			
	6,3-6,5	0,95-1,35	0,35(0,55)			
			0,5 (0,7)			
			0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1
1	2	3	2a	4	5	6	4	7	8	9	10
max.	1400 1650	15,2-17,8 0 - 1,0						ca. 12	100 300	min.8,0 6,0-6,2	
ca.62	10,1 4,0	1440-1450 1550-1580						3a		490-550 = 2,0	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point	Torque-control travel		
rev/min	cm³/1000 strokes	rev/min	4a	5a	6	7	8	9
1	2	3	4	5	6	7	8	9
LDA 1400	0,7 bar 91,0-93,0 (89,0-95,0)	1440-1450*	LDA 900	0,7 bar 87,5-91,5 (85,5-93,5)	100	94,0-104,0		
			LDA 500	0 bar 59,0-61,0 (57,0-63,0)	100-230 (80-250)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

BOSCH

Geschäftsbericht KH Kundendienst Kfz-Ausrüstung
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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel-diminution difference mm (1)
RS 1016 with MW 25-1	0,25	0,7	10,8 - 10,9
		0,1	11,1 - 11,2
		0	10,3 - 10,4
			10,1 - 10,2

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

② Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 14,6 g

2. Edition

En

PE 8 P 120 A 320 LS 3807 RQ 300/1150 PA 546

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing 1 680 750 067

supersedes 4.81

company Daimler-Benz

engine OM 422 A

243 kW (330 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0 - 4,1$
(3,95-4,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	10,7+0,1	15,7-15,9	0,5(0,9)			
300	5,2-5,4	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications	rev/min	Setting point rev/min	Control rod travel mm	Test specifications	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	9,7 4,0	1190-1205 1255-1260	300	4,5	100 300 340-380 = 2,0	min. 6,0 4,4-4,6	1150 600 900	10,7-10,8 11,4-11,5 10,8-11,0
VH = max. 46°											

Torque-control travel
on flyweight assembly dimension a = 0,2 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
1	2	3	4	5	6	7
LDA 1150	0,7 bar 156,5-158,5 (153,5 - 161,5)	-	LDA 900	0,7 bar 164,0 - 168,0 (161,0 - 171,0)	100	120,0 - 140,0
LDA 600	0,7 bar 166,0 - 172,0 (163,0 - 175,0)		LDA 500	0 bar 137,0 - 140,0 (134,0 - 142,0)		

Checking values in brackets

10.82

BOSCH

Geschäftsbericht KH Kundendienst Kfz Ausrüstung
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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure =	Measurement bar	Gauge pressure = bar	Control rod travel- diminution mm (1)
PE 8 P..LS 3807 with ..PA 546	0,47		0,70 0 0,40	11,2-11,3 11,4-11,5 10,3-10,4 10,6-10,7

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 HAN 3,1a 3

2. Edition

En

VA 6/100 H 1700 BR 119
0 460 306 044

supersedes 6.82
company Hanomag
engine D 161

TESTO-ISO 4113

Pre-stroke setting 0,3 mm
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1500	7,8-8,8 mm		
1.2 Supply pump pressure	1700	6,7-7,2 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1200	52,0-53,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	10,0-16,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind. 65,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1800	21,0-29,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min mm	600-760 (570-790) Beginn	1500 (7,5-9,1)	1550-1680 8,7-9,4 (8,4-9,7)
2.2 Supply pump	rev/min kp/cm ²	100 0,7-1,2 (0,5-1,4)	200 6,2-6,7 (6,0-6,9)	1700 6,7-7,2 (6,5-7,4)
Overflow delivery	rev/min cm ³ /10 s	500 mind. 25	1500 85-125 (70-140)	1700 85-125 (70-140)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1860-1950 (1840-1970)	0	
		1850	3,0-15,0	
		1800	(20,0-30,0)	
		1700	44,5-47,5 (43,5-48,5)	
		1200	(51,5-53,5)	
		500	44,5-47,5 (43,5-48,5)	
	Stop	1700	0	
Idle stop	Full	420-560 (400-580)	0	
		350	5,0-10,0	
		300	(9,0-17,0)	
	Start	100	mind. 65,0	
End stop		300-550		

11.82

J15

BOSCH

Geschaftsbereich Motoren- und Antriebstechnik
Fachbereich Motoren- und Antriebstechnik
Bosch Rexroth AG
Postfach 50 0 7000 Stuttgart 1 Printed in FR Federal Republic of Germany

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 55 \pm 8^\circ$ $\gamma = 45 - 8^\circ$ $\delta = 60 + 8^\circ$	Pump Dimension IV = 5,5 mm Dimension V = - mm

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 21,9 e

1. Edition

En

PE 12 P 120 A 320 LS 3821 RQV 350-1150 PA 493-1

1 - 5 - 9 - 8 - 3 - 4 - 11- 10- 2 - 6 - 7 - 12
0 -15 -60 -75 -120-135-180-195-240-255-300-315° $\pm 0,5^\circ$
 $(\pm 0,75^\circ)$

supersedes
company Daimler-Benz
engine OM 424 LA
441 kW (600 PS)
Snow plough

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0 - 4,1
(3,95-4,15) mm (from BDC) Zyl. 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,6+0,1	17,5-17,7	0,5(0,8)			
350	5,0-5,2	1,4-2,2	0,8(0,7)			
650	11,6+0,1					
500	10,4+0,1	C,Sp.4u.5	0,75			

Adjust the fuel delivery from each outlet according to the values in

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 057

Upper rated speed Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel rev/min 3	Intermediate rated speed			Lower rated speed Degree of deflection of control lever 7	rev/min Control rod travel mm 8	Sliding sleeve travel rev/min 10	mm 11
			1a	2a	4				
max.	1150	15,2-17,8	-	-	-	ca. 8	100	min.6,7	300
ca.58	10,6 4,0 1350	1190-1200 1195-1225 0 - 1,0					350	5,0-5,2	580 870 1150
						400-600			0,9-1,1 3,4-3,8 5,1-5,4 7,8
						3a			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 4a		Fuel delivery characteristics high idle speed 5a 5b		Starting fuel delivery idle switching point 6		Torque-control travel Control rod travel 5 mm	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	rev/min 9
LDA 1150	0,6 bar 175,0-177,0 (172,0-180,0)	1190-1200*	LDA 650 LDA 500	0,6 bar 171,0-179,0 (168,0-182,0) 0 bar 143,0-145,0 (140,0-148,0)	100	140,0-160,0	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10 82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel-dimension difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
PE12P..LS3821 with..PA493-1	0,39	0,60	11,3 - 11,4
		0	11,6 - 11,7
		0,30	10,4 - 10,5
			10,6 - 10,8

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 25,7a
3. Edition

En

PE 12 P 120 A 920 LS 3809 RQV 300-1050 PA 537

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12
0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315° ±0,5°
(±0,75°)

supersedes 11.81
company: FIAT
engine: 8297.22
480 kW (653 PS)
Power car

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,5-3,6
(3,45-3,65)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1050	10,0+0,1	19,2-19,6	0,5(0,9)			
300	5,9-6,1	2,8- 3,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1050	15,2-17,8	-	-	-	ca.13	100	min.7,5	250	0,5-0,8
ca.61	9,0	1090-1100					300	5,9-6,1	520	4,1-4,8
	4,0	1165-1195					310-410		780	6,0-6,2
									1050	8,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	rev/min
1	2	3	4	5	6	8
LDA 1050	0,7 bar 191,0-196,0 (188,0-199,0)	1090-1100*	LDA 1050	0 bar 139,0-143,0 (136,0-146,0)	100	210,0-240,0

Checking values in brackets

* 1 mm less control rod travel than col 2
10.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement		Control rod travel mm	diminution difference (1)
		Gauge pressure = bar	Gauge pressure = bar		
PE12P.. LS3809 with . PA537	0,33		0,70		9,5-9,6
			0		9,9-10,0
			0,29		9,5-9,6
					8,4-8,7

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

② **Test Specifications
Fuel Injection Pumps
and Governors**

40

WPP 001/4 SAU 12,5a
1. Edition

En

PES 6 P 100 A 420 RS 262 Z RQ 300/110G PA 219DR(1)
RQV 250-1100 PA 139DR(2)

supersedes Saurer, Arbon
company D 2 K
engine

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8-2,9

Port closing at prestroke

(2,75-2,95)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	11,2+0,1	11,3-11,5	0,5(0,8)	2	3	6
200	9,0-9,2	3,5- 4,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..PA 219 DR (1)

Checking of slider Control rod travel rev/min 1	Full-load speed regulation				Idle speed regulation				Torque control		
	Setting point Control rod travel rev/min 3	Test specifications Control rod travel mm 4	Setting point Control rod travel rev/min 5	Test specifications Control rod travel mm 6	Setting point Control rod travel rev/min 7	Test specifications Control rod travel mm 8	Setting point Control rod travel rev/min 9	Test specifications Control rod travel mm 10	Control rod travel rev/min 11	Control rod travel mm 12	
650	15,7-16,3	650	16,0	1120 1160 1200 1270	15,1-15,4 8,7-13,7 0 - 9,0 0	600	0	180 250 350 500	6,3-8,1 5,3-7,3 3,1-5,3 0	1100 700	11,2+0,1 11,6+0,1

Torque-control travel
on flyweight assembly dimension a =

0,3
mm

Speed regulation: At

1150-1170 min ⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min		Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/100 strokes
1100	113,0-115,0 (110,0-119,0)	500		700 500	119,0-122,0 (116,0-125,0) 111,0-115,0 (108,0-118,0)	150	160,0-180,0

Checking values in brackets

11.82

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J21

J21

B. Governor Settings

.. PA 139 DR (2)

SAU 12,5a -2-

1

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.68	1100	15,0-18,0	-	-	-	ca.12	180	6,4-8,0	200	0-1,0
	1150	11,0-15,0					250	3,7-6,1	500	3,9-4,3
	1200	6,6-11,8					350	1,9-3,3	800	5,5-5,9
	1280	0 - 6,2					490	0	1100	8,3
	1360	0				(3a)				

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b)		Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery idle switching point (6)		Torque-control travel Control rod travel (5)	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm
1	2	3	4a	4	5	6	7	8	9
1100	113,0-115,0 (110,0-118,0)	1150-1170*		700 500	119,0-122,0 (116,0-125,0) 111,0-115,0 (108,0-118,0)	150	160,0-180,0	1100 500	11,2+0,1 11,6+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Testat n = decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Measurement		diminution Control rod travel-difference	
Gauge pressure =	bar	Gauge pressure =	bar	mm

En

Test Specifications Fuel Injection Pumps and Governors

PE 10 P 120 A 320 LS 3824 RQ 300/1050 PA 656

1 - 8 - 7 - 6 - 3 - 5 - 2 - 10- 9 - 4

0 - 27 - 72 - 99 - 144 - 171 - 216 - 243 - 288 - 315° ± 0,5° (± 0,75°)

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes
company Daimler-Benz
OM 423 LA
engine Euclid
346 kW (470 PS)

Testo! ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke (4,0-4,15) mm (from BDC) Zy1. 10

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1050	11,8±0,1	19,0-19,2	0,5(0,8)			
300	5,0-5,2	1,6- 2,2	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,3	600	20,0	10,8 4,0 1300	1095-1110 1165-1195 0-1,0	300	4,3	100 300 335-	min. 5,8 4,2-4,4 375=2,0	1050 600	11,8-11,9 11,8-12,0

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation At 1095-1110 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery	
rev/min	cm³/-1000 strokes	rev/min	3	rev/min	cm³/-1000 strokes	rev/min	cm³/100 strokes	
1	2	4	5	6	7			
LDA 1050	0,9 bar 190,0-192,0 (187,0-195,0)	-		LDA 500	0 bar 136,0-142,0 (133,0-145,0)	100	160,0-180,0	

Checking values in brackets

10.82

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting		Measurement		Control rod travel-	diminution difference
	Gauge pressure =	bar	Gauge pressure =	bar	mm	(1)
PE10P..LS3824 with..PA656	0,42		0,90		11,5-11,6	
			0		11,8-11,9	
			0,35		10,8-10,9	
					11,0-11,2	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 K

2. Edition

En

PE 8 P 120 A 320 LS 3807 ROV 300-1150 PA 545

1-8-7-2-6-3-5-4 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

Values apply.

values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

supersedes
4.81

compan Daimler-Benz

engine OM 422 A

243 kW (330PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

4,0-4,1
(3.95-4.15)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1150	10,7+0,1 2	15,7-15,9 3	0,5(0,9) 4			
300	5,2-5,4 1	1,2-1,8 3	0,8(1,2) 4			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm	1
1	2	3	4	5	6	7	8	9	10	11	
max.	1150	15,2-17,8	-	-	-	ca. 11	100	min.6,0	250	1,0-1,2	
ca. 64	9,7	1190-1200					300	4,5-4,7	550	3,4-3,8	
	4,0	1225-1255							850	4,9-5,4	
	1350	0 - 1,0				325-460			1150	7,7	
						(3a)					

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm	
1	2	3	4	5	6	7	8	9	
LDA 1150	0,7 bar 156,5-158,5 (153,5-161,5)	1190-1200*	LDA 900	0,7 bar 164,0-168,0 (161,0-171,0)	100	120,0-130,0	1150	10,7+0, 600 900	
LDA 600	0,7 bar 166,0-172,0 (163,0-175,0)		LDA 500	0 bar 137,0-139,0 (134,0-142,0)				11,4+0, 10,8+0, 2	

Checking values in brackets

* 1 mm less control rod travel than col 2

10.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement		Control rod travel- diminution difference (1)
		Gauge pressure =	bar	
PE8P..LS3807 with ..PA 545	0,47			11,2-11,3
		0,70		11,4-11,5
		0		10,3-10,4
		0,40		10,6-10,7

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

1 Test Specifications Fuel Injection Pumps ① and Governors

WPP.001/4 MB 14,6 1 1
1 Edition

En

PE8P120A320LS3807 RQV 300-1150PA526-2
1-8-7-2-6-3-5-4 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$
Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

supersedes
company Daimler-Benz
engine OM 422 LA
276 kW (375PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

4,0-4,1
(3,95-4,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
900	11,6+0,	18,9-19,1	0,5(0,9)	2	3	6
	4,2-4,4	1,2- 2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1	
1	2	3	2a	4	5	6	4	7	8	9	10 11	
max.	1150	15,2-17,8	-	-	-	-	ca.10	ca.10	100 300	min.6,0 4,2-4,4	250 550 850 1150	,0-1,2 3,7 4,9-5,3 7,6
ca.65	10,6 4,0 1350	1190-1200 1230-1260 0- 1,0					320-465	320-465				
							3a					

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	high idle speed	5a rev/min	cm³/1000 strokes	Control rod travel rev/min
LDA 900	0,7 bar 189,0-191,0 (186,0-194,0)	1190-1200*	LDA 600	0,7 bar 180,0-184,0 (177,0-187,0)	100	140,0-160,u
LDA 1150	0,7 bar 185,0-189,0 (182,0-192,0)		LDA 500	0 bar 139,0-141,0 (136,0-144,0)		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

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K3

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement		Control rod travel- mm	diminution difference (1)
	Gauge pressure =	bar	Gauge pressure =	bar	
PE8P..LS3807 with .. PA526-2	0,44		0,70 0 0,34		11,1-11,3 11,6-11,7 10,1-10,2 10,5-10,7

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 DAF 11,6 k

4. Edition

En

PE 6 P 120 A 320 RS 372

RSV 250-1100 P5/458R

supersedes 11.81

company DAF

engine DKS 1160

235 kW (320 PS)

See service Information VDT-I-DAF 004

Testoöl ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **2,8 - 2,9**
 (2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	10,9+0,1	19,1 - 19,5	0,5 (0,9)			
250	5,2-6,4	1,1 - 1,5	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
loose	800	0,3 - 1,0	-	-	-	ca. 24	250	5,8	400	11,1+0,1
	x = 5,0						250	6,2-6,4	300	11,3+0,5
ca. 54°	9,9	1140-1150					628-680 = 2,0			
(5)	4,0	1260-1290								
	1425	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery		(5a) Idle stop	
Test oil temp 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
LDA	0,7 bar	1140-1150*	LDA	0 bar	100	315,0-355,0	-	-
350	191,0-195,0 (188,0-198,0)		600	135,0-137,0 (132,0-140,0)		19,5- 21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.32

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement		Control rod travel- (1)	diminution- difference
		Gauge pressure =	bar		
PE6P120..RS 372 with ..P5/458R	0,36	0,70		10,6 - 10,7	
		0		10,9 - 11,0	
		0,28		9,8 - 9,9	
				10,0 - 10,2	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BET 14,9 a
2. Edition

Testoil-ISO 4113

PES 8P 110A 320 RS 336	RQV 250-1150 PA 320 DR RQV 250-1150 PA 415 DR	supersedes 2.82 company Berliet engine MIVS 083530 246 kW (335 PS)
1-8-4-2-7-3-6-5	je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$	

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,4+0,1	11,8 - 12,0	0,4(0,8)			
250	4,0-4,2	1,4 - 2,0	0,4(0,7)			
650	13,1+0,1	C, Sp. 4 u. 5	0,6(1,0)			
500	11,2+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..PA 320 DR u. ..PA 415 DR

Upper rated speed rev/min	Degree of deflection of control lever	Control rod travel mm	Intermediate rated speed			Degree of deflection of control lever	Control rod travel mm	Lower rated speed			Sliding sleeve travel mm
			1a	2a	3a			7	8	9	
max.	1200	15,2-17,8	-	-	-	ca. 9	100	min. 5,6	200	0,6-0,8	
ca. 66	10,4 4,0 1400	1190-1200 1270-1300 0 - 1,0					250	4,0-4,2	520	2,9-3,2	
							370-410 = 2,0mm	1150	830	4,7-4,9	
						(3a)					7,8

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel		
rev/min	cm³/1000 strokes	rev/min	4	5	6	7	8	9
LDA	0,7 bar	1190-1200*	LDA	0,7 bar	100	185,0-215,0	1150	11,4+0,1
1150	118,0-120,0 (115,0-123,0)		650	158,5-162,5 (155,5-165,5) 0 bar			650	13,1+0,1
			LDA	116,0-118,0 (113,0-121,0)			800	12,8+0,1
			500				1000	11,7+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel-diminution mm (1)	
					diminution difference	
PES 8 P..RS 336	0,7		0		13,1 - 13,2	
..PA 320 DR			0,31		11,3 - 11,4	
..PA 415 DR			0,25		12,7 - 12,8	
					11,7 - 12,0	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 6,2i2

2. Edition

En

PE 6 A 90 D 320 RS 2547 RSV 250-1200 A5B 2133 R

supersedes 5.81
company DAF
engine: DT 615

Testoil-ISO 4113

See service Information VDT-I-DAF 004

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,2-2,3
(2,15-2,35) mm (from BDC) RW 0 9 mm/

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	10,8+0,1	7,05 - 7,15	0,3(0,45)			
250	5,9-6,1	0,8 - 1,2				

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca.17	250	5,5	1000	10,8-10,9
	x = 3,25						250	5,9-6,1	500	10,8-10,9
ca.50,5	9,8	1240-1250					585-645	2,0	250	11,1-11,3
5	4,0	12 0-13 0								
	1490	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
LDA	0,7 bar		LDA	0 bar	-	-	-	-
1000	70,5 - 71,5 (68,5 - 73,5)	1240-1250*	600	50,0 - 52,0 (48,0 - 54,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Port closing difference between control-rod travel 9 mm
and max. = 2.5 - 3.5° camshaft.

8.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1000 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure
XXXXXX

Pump/governor	Setting	Measurement	Control rod travel- mm	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	(1)	
.. RS 2547 with RSV .. A5B 2133 R	0,7	0,25	10,8 - 10,9	
		0,21	10,6 - 10,7	
		0	10,1 - 10,4	
			9,8 - 10,0	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 3,8 m

5. Edition

En

PES 4 A 90 D 410 RS 2294

RSV 350-750 A 0 B 764 L
350-900

supersedes 8.82

company: Daimler-Benz
engine: OM 314

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25
(2,10-2,30)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	9,4-9,5	4,7-4,8	0,3(0,45)			
350	6,7-6,9	0,5-1,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

350-750

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx. 15	350	6,8	-	-
approx.	x = 3,25						350	6,7-6,9		
26	8,4	750								
5	4,0	788-796								
	820	0,3-1,7								

** Set auxiliary idle spring at 2.0 mm control-rod travel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.		(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop		
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	8	9
700	47,0-48,0 (45,0-50,0)	750*	-	-	100	78,0-88,0	-	-		

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

B. Governor Settings

350-900

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control rev/min	Control rod travel mm
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	mm		
aprox 33	750	16,0				aprox. 20	350	7,0	-	-
	830	9,0					100	min. 19		
	870	4,5					350	6,7-7,3		
approx 35	895 - 905 = 8,3		without auxiliary spring				370-430 = 2,0			
(2a)	930 - 945 = 3,8		with auxiliary spring				450	0 - 1		
	1000 0,3 - 1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop		
Test oil temp. 40°C (104°F)	Note: changed to ...)	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
		1	2	3	4	5	6	7	8	
850	49,5-50,5 (47,5-52,5)		895-905*				100	14,7-15,3 mm RW	350	7,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

** Set auxiliary idle spring at 2.0 mm control-rod travel.

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement		Control rod travel-diminution difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm	

Notes

(1) when n = rev/min

and gauge pressure = bar

bar (= maximum full-load control rod travel)

En

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8°

1. Edition

En

Testoil-ISO 4113

PE 10 P 110 A 920/5 LS 3073 RQV 300-1150 PA 549 .

1-10-9 - 4- 3 - 6 - 5 - 8 - 7 - 2
0-27-72-99-144-171-216-243-288-315 ° ±0,5 ° (-0,75 °)

supersedes

company KHD

engine: BF 10L 413 F
265 kW (360 PS)
bei 2050 min⁻¹
bzw. 252 kW (342 PS)
(Maxidyne)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8-2,9

Port closing at prestroke

(2,75-2,95)

mm (from SDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	11,6+0,1	13,8-14,0	0,4(0,8)			
	6,9-7,1	1,8 - 2,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in **B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	10	11
1	2	3	2a	4	5	6	4	7	8	9	3		
max:	1220	15,2-17,8		-	-	-	approx 12	100	min.8,5	250			
								300	6,9-7,1	550			
approx. 64	9,7 4,0 1400	1190-1200 1270-1300 0 - 1,0						465-525 = 2,0	2,0	1150			
							3a						

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	4a	5a high idle speed 5b	6	5 Control rod travel rev/min
800	0,9 bar 138,0-140,0 (135,0-143,0)	1190-1200 *	LDA 1150	0,9 bar 121,0-125,0 (118,0-128,0)	100	110,0-140,0 1150 1050 1020 800
1025	0,9 bar 134,0-138,0 (132,0-140,0)		LDA 500	0 bar 85,0-89,0 (82,0-92,0)		10,7+0,1 11,2+0,2 11,5+0,2 11,6+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 10 P..LS 3073 RQV.. PA 549	0,55	0,90 0 0,39	11,2-11,3 11,6-11,7 9,4-9,5 10,1-10,3

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WWP 001/4 KHD 19,0 1

1. Edition

En

Testoil-ISO 4113

PE 12 A 95 D 610 LS 2453 RQV 300-1150 AB 1056 DL

1- 4- 9- 8- 5 - 2 - 11- 10- 3 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315 ° ± 0,5 °
(± 0,75 °)

supersedes

company KHD

engine: BF 12 L 413 FWC
272 kW (370 PS)
at 2300 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,3+0,1	9,1 - 9,3	0,3(0,6)			
	6,4-6,6	0,9 - 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	6	7	8	9	10
max.	1150	15,2-17,8	-	-	-	approx. 14	100	min. 8,0	250	0,2-0,8
approx. 66	9,3 4,0 1350	1190-1200 1240-1270 0 - 1,0				310-380	300	6,4-6,6	550 850 1150	2,8-3,2 4,7-5,0 7,9
			2a			3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery XxxXXX switching point	Torque-control travel		
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,5 bar 90,5 - 92,5 (88,5 - 94,5)	1190-1200 *	LDA 775 LDA 500	0,32 bar 94,5 - 98,5 (92,5 - 100,5) 0 bar max. 76,5 (max. 78,5)	100	119,0 - 129,0 at 14,4- 14,6 mm RW	1150 500 775 930	10,3+0,1 10,7+0,1 10,7+0,1 10,5+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 12 A.. LS2453 with ..AB 1056 DL	0,7		10,7 - 10,8
		0	10,2 - 10,3
		0,33	10,6 - 10,7
		0,28	10,4 - 10,6

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 K 1

2. Edition

En

PES 6 A 85 D 410/3 RS 2592 RQV 300-1250 AB 1158 L

supersedes 582

KHD

company:

BF 6 L 913

GMC-Fahrzeug

118 kW (160 PS)

at 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,2-2,3

(2,15-2,35)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm: 6
1250	13,2+0,1	8,8-8,9	0,3(0,45)			
	8,7-8,9	1,0-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	7	8	9	10	11
max.	1290	15,2-17,8	-	-	-	approx. 14	100	min. 10,3	250	0,5-0,8
approx. 66	12,2 4,0 1500	1290-1300 1380-1410 0-1,0				350-450	300	8,7-8,9	580 920 1250	3,6-3,7 5,3-5,4 8,1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control travel
rev/min	cm ³ /1000 strokes	rev/min	4a	5a	5b	6	5
1	2	3		4	5	6	7
LDA 1250	0,7 bar 87,5-88,5 (85,5-90,5)	1290-1300*	LDA 800	0,7 bar 89,5-92,5 (87,5-94,5)	100	118,5-128,5 at 17,8- 18,2 mm RW	1250 800 900 1100
LDA 1100	0,7 bar 87,5-90,5 (85,5-92,5)		LDA 500	0 bar 59,0-60,0 (57,0-62,0)			13,2+0,1 14,0+0,1 13,7+0,2 13,4+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

BOSCH

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Testoil-ISO 4113

K17

D. Adjustment Test for Manifold Pressure Compensator

Test at $n =$ 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6A..RS2592 with ..AB 1158L	0,46	0,70 0 0,28	13,6 - 13,7 14,1 - 14,2 12,3 - 12,4 12,5 - 12,7

Notes

(1) when $n =$

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 p

7. Edition

En

PES 6 A 95 D 410 LS 2542 RQV 250-1100 AB 850 DL (1)
RQV 250-1100 ABV 14815 (2)

supersedes 2.82
company: MAN
engine: D 2566 M, MF
177 kW (241 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,5-1,6
(1,45-1,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,0+0,1	12,5 - 12,7	0,3(0,6)			
250	5,9-6,1	0,9 - 1,4				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

.. AB 850 DL (1)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
approx. 50	1140	14,4-17,6	-	-	-	approx. 13	100	min. 7,2	200	0,5-1,2
approx. 42	11,0	1140-1150					250	5,6-5,8	600	3,8-4,1
	4,0	1180-1210					315-375=2,0mm		1140	8,3
	1300	0 - 1,0					450	0 - 1,0		

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	high idle speed	5a 5b rev/min	rev/min	Control rod travel rev/min
1	2	3	4	5	6	8
1100	124,5-126,5 (122,5-128,5)	1140-1150*	750 500	113,0-116,0 (111,0-118,0) max. 113,5 (max. 115,5)	100 bei 14,0 - 14,6 mm RW 250 100-170(80-190)	1100 500 12,0+0,1 12,1+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2
8.82

B. Governor Settings

..ABV 14815

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel rev/min	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel 1 rev/min mm
1	2	3	2a	4	5	6	4	7	8	9	3	10 11
max.	1260	15,2-17,8		-	-	-	approx 12	100	min. 7,5	200	0,7-0,9	
approx. 42	11,0 4,0 1400	1140-1150 1260-1290 0 - 1,0					3a	250	5,9-6,1	500	2,8-3,1	
								320-380=2,0mm		800	5,2-5,5	
										1100	7,2	

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1100	127,5-129,5 (125,5-131,5)	1140-1150*	500	min. 113,5	100	14,0-14,6 mm RW 6,0	250	100-170 (80-190)	- -

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel rev/min	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel 1 rev/min mm
1	2	3	2a	4	5	6	4	7	8	9	3	10 11

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Testoil-ISO 4113

Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 s 2

3. Edition

En

PES 6 A 90 D 410 RS2293	EP/RSV 350-1400 AO B2002 L (1)	supersedes 10.78
	A0 B2053DL (2)	company: Daimler-Benz
		engine: OM 352
		(1 - 100kW - 130PS)
		(2 - 82 kW - 111PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,15-2,25}
 (2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery (1) cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery (2) cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1380	10,0+0,1	6,1 - 6,3	0,3(0,45)	9,0	5,1 - 5,2	
350	7,1-7,3	0,9 - 1,5	0,2(0,4)	7,4-7,6	0,9 - 1,5	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

2002L (1)

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				approx.	350	6,7	-	-
approx.	x =	4,0				30	100	min. 19		
							350	7,1-7,3		
61	9,0	1420-1430					550-	610=2,0		
5	4,0	1505-1535					700	0 - 1		
	1600	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.		(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
(1) 1380	61,5 - 62,5 (59,5 - 64,5)	1420-1430*				100	14,2-14,8 mm RW	350	7,2
						1517	3,6- 4,6 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

B. Governor Settings

2053D! (2)

1A

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				approx.	350	7,0	1380	9,0
approx.	x	= 4,0				29	100	min. 19	1000	9,5
61	8,0	1420-1430					350	7,4-7,6	500	9,9
(5)	3,4	1455-1485					530-	590=2,0		
	1600	0,3-1,7					700	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop			(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp 40°C (104°F)	rev/min	cm³/1000 strokes	Note changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
(2)	1380	51,0 - 52,0 (49,0 - 54,0)	1420-1430 *	100	55,5 - 58,5 (53,5 - 60,5)	100	72,25 - 82,25	350	7,5
				600	46,0 - 48,0 (44,0 - 50,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113**B. Governor Settings**

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
(5)										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop			(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp 40°C (104°F)	rev/min	cm³/1000 strokes	Note changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	

Checking values in brackets

En

* 1 mm less control rod travel than col. 2

⑥ Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VW 2,0aI
2. Edition

En

VE 5/10 F 2400 L 35-2 (P)
0 460 405 003; 004

supersedes 6,82
company VW
engine: Audi 100

Overflow temperature 45°C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,14 mm $\pm 0,02$ (0,04)

see VDT-W-460/..

1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1400	2,4-2,8 mm		
1.2 Supply pump pressure	1400	5,0-5,6 bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1400	35,0-36,0 cm³/1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure	--	-- cm³/1000 strokes		
1.4 Idle speed regulation	375	6,0-10,0 cm³/1000 strokes		2,5(3,0)
1.5 Start	100	min. 53,0 cm³/1000 strokes		
1.6 Full-load speed regulation	2500	24,5-31,5 cm³/1000 strokes		
1.7 Load-dependent start of delivery				

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1400 (1,9-3,3)	2400 5,1-5,9(4,8-6,2)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	500 2,8-3,4		2400 7,5-8,1
Overflow delivery	n = rev/min cm³/10 s	500 55,1-138(40-153)		2400 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	Dimensions for assembly and adjustment mm
End stop	2650 2500 2400 1400 750	6,0-12,0 (5,0-13,0) (24,0-32,0) 29,5-31,5 (28,2-32,8) (33,2-37,8) 24,5-27,5 (23,0-29,0)		K	--
switch-off elect.	400	0		KF	5,7-5,9
Idle stop	500 375	max. 3,5 (4,0-12,0)		MS	1,7-1,9
End stop	400 500	min. 16,0 Max. 23,0		SVS	max. 3,0
2.4 Solenoid	max cut-in voltage test voltage	xxx min. 10,0 V xxx	rated voltage 12V	XK	18,5-20,5
				XL	9,0-12,5
				B	
				Observations	

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWW 2,0a

3. Edition

VE 5/10 F 2400 L 35 (P)
0 460 405 001: 002

supersedes 6.82
company: VWW
engine: Audi 100

Overflow temperature 45°C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers.

Test Instructions and Test Equipment

see VDT-W-460/.

Pre-stroke setting	0,14	mm	$\pm 0,02$ (0,04)	see VDT-W-460/..	
1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1400	2,4-2,8	mm		
1.2 Supply pump pressure	1400	5,0-5,6	bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure Full-load delivery with charge-air pressure	1400 --	35,0-36,0 --	cm ³ /1000 strokes cm ³ /1000 strokes		2,5(3,0)
1.4 Idle speed regulation	375	6,0-10,0	cm ³ /1000 strokes		2,5(3,0)
1.5 Start	100	min. 53,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	2500	24,5-31,5	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	--	--			

2. Test Specifications		checking values in brackets ()
2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4) 1400 (1,9-3,3) 2400 5,1-5,9(4,8-6,2)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 2,8-3,4 2400 7,0-8,1
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153) 2400 55-138(40-153)

2.3 Fuel deliveries				3. Dimensions	
Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)	Designation	for assembly and adjustment mm
End stop	2650	6,0-12,0	(5,0-13,0)	K	--
	2500		(24,0-32,0)	KF	5,7-5,9
	2400	29,5-31,5	(28,2-32,8)	MS	1,7-1,9
	1400		(33,2-37,8)	SVS	max. 3,0
	750	24,5-27,5	(23,0-29,0)	XK	18,5-20,5
switch-off				AXL	9,0-12,5
elect.	400	0		B	
Idle stop	500	max. 3,0		Observations	
	375		(4,0-12,0)		
End stop	400	min. 16			
	500	max. 23			
2.4 Solenoid	max. cut-in voltage !96X0102XXXX	xxxx	min. 10,0 V rated voltage 12V.		

Test Specifications Fuel Injection Pumps and Governors

40

VDT-WPP 001/4 BÜS 12,3 g

3. Edition

En

Testoil-ISO 4113

PE 6 P 120 A 821 LS 282	RQV 300-1050 PA 249 D (1) RQV 300-1100 PA 258 D (2) RQV 400-1050 PA 316 D (3)	supersedes 10.75 company MAN-Büssing engine D 3256 BTXU (290 PS - 1) (320 PS - 2) D 3256 BTYU (310 PS - 3)
Testing with T nozzles and fuel lines 8x2x1000 according to ..WPP 110/2 !		

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8 + 0,1

mm (from BDC)

Zyl. 6 (+ 0,15)
(- 0,05)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³: 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	5	6	6
1000	12	20,1 - 20,8	0,8			
600	9	9,8 - 11,3				
	15	22,2 - 24,3				
200	9	5,3 - 6,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV .. 249 D (1)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
ca. 50	1050	15,0-18,8	-	-	-	ca. 13	150	9,4-11,0	1050	8,3
	1100	10,0-14,8					250	6,9- 9,2	1050	0
	1180	0 - 7,4					350	2,8- 5,4	500	0,6-0,7
	1260	0					450	0		

Torque control travel = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation		Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm
LDA	0,7 bar	LDA	0,7 bar	800	206,0-210,0	100	16 mm RW		
1050	226,0-228,0	1090-1100*		500	185,0-191,0		Change-over point, max. 200 min⁻¹		
LDA	0 bar								
1050	207,0-211,0								
(Increase by ± 3,0 cm³)									

Checking values in brackets

* 1 mm less control rod travel than col. 2

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8.82

B. Governor Settings

RQV .. 258 D (2) BÜS 12,3 g - 2 -

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel					
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm	1
1	2	3	2a	4	5	6	4	7	8	9	3	10	11	
ca. 50	1140	14,4-17,4	-	-	-	-	ca. 13	100	7,6-10,3	200	0,6-1,2			
	1180	8,0-13,0						200	5,7- 8,6	500	3,4-3,7			
	1220	0 - 8,4						300	2,5- 5,4	900	5,6-6,0			
	1280	0						410	0	1140	8,3			
							(3a)			1100	0			
										500	0,4-0,5			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)			Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel		
rev/min	cm³/1000 strokes	rev/min	4a	5a	6	5		
1	2	3	4	5	6	7	8	9
LDA	0,7 bar			LDA	0,7 bar			
1100	236,0-238,0	1090-1100*		800	194,0-198,0	100	16 mm RW	
				500	192,0-198,0			
LDA	0 bar							
1100	204,0-210,0							
(Increase by $\pm 3,0 \text{ cm}^3$)								

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

RQV .. 316 D (3)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel					
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm	1
1	2	3	2a	4	5	6	4	-	8	9	3	10	11	
ca. 50	1075	15,0-18,2	-	-	-	-	ca. 13	250	8,9-11,0	1075	8,3			
	1120	10,2-14,5						300	7,1-10,0					
	1200	0 - 7,8						400	2,8- 5,5	1070	0			
	1280	0						490	0	600	0,5-0,7			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)			Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel		
rev/min	cm³/1000 strokes	rev/min	4a	5a	6	5		
1	2	3	4	5	6	7	8	9
LDA	0,85 bar			LDA	0,85 bar			
1050	239,0-241,0	1090-1100*		800	212,0-216,0	100	16 mm RW	
				500	201,0-207,0			
LDA	0 bar							
1050	183,0-189,0							
(Increase by $\pm 3,0 \text{ cm}^3$)								

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at $n = 500$ rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure
XXXXXX

BÜS 12,3 g - 3 -

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm XXXXXXXX
282 with 249 D	0,40 - 0,42	0,22 - 0,26	- 0,1 mm - 1,1 mm
282 with 258 D	0,46 - 0,49		- 0,1 mm Difference ca. 2,3 mm
282 with 326 D	0,68 - 0,75	0,24 - 0,28	- 0,1 mm - 3,0 mm

Notes

(1) when $n = 1050$ rev/min and gauge pressure = 0,7 bar (= maximum full-load control rod travel)

1. Test sequence - Change in VDT-W-420/300
Suppl. 2, Ed. 2

Section 4.1 - Adjust the spring retainer (compensation capsule)

New text:

Run the injection pump at $n = 1,000 \text{ min}^{-1}$.
Fix the control lever at 69° .

Using a pin wrench, turn in the spring retainer so far that the control-rod travel is reached at $n = 1,000 \text{ min}^{-1}$. Pin wrench = KDEP 1064/1.

Measure the full-load delivery.

Fix the control lever at 49° .

Drive the injection pump at $n = 1,000 \text{ min}^{-1}$.
The control-rod travel must be 8,6 - 9,3 mm.

Section 4.3 changes as follows:

Drive the injection pump at $n = 800 \text{ min}^{-1}$.

Set the control lever so that the control-rod travel reaches 1.4 - 1.7 mm.

The control lever must lie within the permissible tolerance.

Move the idle stop up against the control lever and lock it there.

Reduce the pump speed to $n = 375 \text{ min}^{-1}$ and release the leaf spring (32) with the lower adjusting screw (28) until the control-rod travel specified in the Test-Specifications Sheet is reached.

Carry on according to the Testing Instructions, taking into account that Section 4.8 no longer applies.

2. Testing of Sections A, B and C is carried out without altitude pressure compensator (ADA) aneroid box.

After this test has been completed, the aneroid box is refitted.

Testing the governor with the ADA aneroid box.

Pump speed	Pressure (abs. in mbar)	Reduction from the maximum full-load control-rod travel (mm)
1,000	840	1.0 - 1.2 (0.95 - 1.25)
1,000	907	0.3 - 0.6 (0.25 - 0.65)
1,000	667	2.4 - 2.9 (2.35 - 2.95)

3. Pin projection dimension = $16.65 \pm 0.05 \text{ mm}$

4. ** At this pump speed, apply pressure to the control lever and increase the control-rod travel by $0.4^{+0.1} \text{ mm}$.
The idle delivery may not change.

5. Setting angle - Idle/full-load 38 - 42°
6. Sensing-lever setting: Bring sensing lever into contact at $n = 375 \text{ min}^{-1}$ (control lever in full-load position). Control-rod travel must be 0.1 (0.1 - 0.2) mm more than the full-load control-rod travel at $n = 1,000 \text{ min}^{-1}$.
7. Pneumatic shut-off check:
Move the control lever to the idle position.
Drive the injection pump at $n = 375 \text{ min}^{-1}$.
At $P_u = 450 \text{ mbar}$ (338 mm Hg) (vacuum), the control rod must move rapidly to control-rod travel = 0 mm position.
8. Mechanical shut-off check:
Overcome the idle stop at the control lever.
Drive the injection pump at $n = 200 \text{ min}^{-1}$.
The control-rod travel must remain below 5 mm.

① Test Specification Testoil-ISO 4113-40

Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 n

5. Edition

En

PES 6 A 90 C D 410 RS 2293, Z RS 2293Y RS 2293W,X RQV..AB740L,780L,781L (1-2) RQV..AB740L (3) RQV..AB740L (4-5)

supersedes 4.77
company Daimler-Benz
engine OM 352 A

(1 - 130 PS)
(2 - 168 PS)
(3 - 145 PS)
(4 - 156 PS)
(5 - 130 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	9	4,5 - 5,0	0,4			
	6	1,8 - 2,6				
	12	7,3 - 8,3				
200	9	2,0 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV 300-1425 AB740L (1)

Upper rated speed Degree of deflection of control lever	Control rod travel			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
	rev/min	2	3	4	5	6	7	8	9	10	11
approx. 66	1425	16,0-19,4		-	-	-	approx. 10	100	6,6-7,8	400	1,4-2,2
	1500	11,6-16,0						300	4,9-6,4	1425	8,1
	1550	8,2-13,4						450	3,0-4,2		
	1650	1,4-8,0						600	1,3-2,8		
	1790	0						760	0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
(1 - 1400	2293 with 740) 61,5-62,5 (59,5-64,5)	1455-1465 *			100	71,0-81,0 13,9-14,3 mm RW		
								250-180 min⁻¹

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.82

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B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	1a Degree of deflection of control lever	rev/min	Control rod travel mm	4 Degree of deflection of control lever	rev/min	Control rod travel mm	3 rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
approx. 68	1425	16,0-19,0	-	-	-	approx. 10	200	6,0-7,4	400	1,2-2,2
	1500	10,8-15,3					300	4,9-6,6	1425	8,3
	1600	3,3-10,0					450	3,0-3,9		
	1650	0 - 7,4					600	1,4-2,8		
	1770	0					700	0		

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	5a	rev/min	cm³/1000 strokes	6	Control rod travel mm
1	2	3	4	5	6	7	8	9		
(1 - 1400	2293 with 780, 781)	61,0 - 63,0	1455-1465 *				100	72,25-82,25	700(780)

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	1a Degree of deflection of control lever	rev/min	Control rod travel mm	4 Degree of deflection of control lever	rev/min	Control rod travel mm	3 rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
approx. 66	1425	16,0-19,4	-	-	-	env. 10	100	6,6-7,8	400	1,4-2,2
	1500	11,6-16,0					300	4,9-6,4	1425	8,1
	1550	8,2-13,4					450	3,0-4,2		
	1650	1,4-8,0					600	1,3-2,8		
	1790	0					760	0		

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	5a	rev/min	cm³/1000 strokes	6	Control rod travel mm
1	2	3	4	5	6	7	8	9		
(2 - 1375	2293Z with 740)	73,5 - 75,5	1435-1445*				100	72,25-82,25		

Checking values in brackets

En

* 1 mm less control rod travel than col. 2

Testo ISO 413

B. Governor Settings

RQV 300-1425 AB780L, 781L (2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel
1	2	3	2a	4	5	6	4	7	8	9	3	1
approx. 68	1425	16,0-19,0	-	-	-	-	approx 10	200	6,0-7,4	400	1,2-2,2	
	1500	10,8-15,3						300	4,9-6,6	1425	8,3	
	1600	3,3-10,0						450	3,0-3,9			
	1650	0-7,4						600	1,4-2,8			
	1770	0					(3a)	700	0	-	-	

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel		
rev/min	cm³/1000 strokes	1	2	3	4	5	6	7	8	9	Control rod travel mm
(2 - 2 293Z with 780	, 781)										
1375	73,5 - 75,5	1435-1445 *					100	72,25-82,25	700(780)	
							250-180 min -1		1300(781)	

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

RQV 300-1425 AB740L (3)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel
1	2	3	2a	4	5	6	4	7	8	9	3	1
approx 66	1425	16,0-19,4	-	-	-	-	approx 10	100	6,6-7,8	400	1,4-2,2	
	1500	11,6-16,0						300	4,9-6,4	1425	8,1	
	1550	8,2-13,4						450	3,0-4,2			
	1650	1,4-8,0						600	1,3-2,8			
	1790	0					(3a)	760	0	-	-	

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel		
rev/min	cm³/1000 strokes	1	2	3	4	5	6	7	8	9	Control rod travel mm
(3 - 2293Y with 740)											
1400	70,0 - 72,0	1455-1465 *					100	72,25-82,25			
							250-180 min -1				

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

RQV 300-1425 AB740 (4)

Upper rated speed				Intermediate rated speed				Lower rated speed				Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm
1	2	3	②a	4	5	6	⑤	7	8	9	⑥	10	11
approx 66	1425	16,0-19,4	-	-	-	-	-	approx. 10	100	6,6-7,8	③a	400	1,4-2,2
	1500	11,6-16,0							300	4,9-6,4			
	15,0	8,2-13,4							450	3,0-4,2			
	1650	1,4-8,0							600	1,3-2,8			
	1790	0							760	0			

Torque control travel a = mm

C. Settings for Fuel injection Pump with Fitted Governor

- 1 mm less control rod travel than col 2

Checking value in brackets

Testoil ISO 4113

B. Governor Settings

RQV 300-1425 AB740L (5)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
approx. 66	1425	16,0-19,4	-	-	-	approx. 10	100	6,7-7,8	400	1,4-2,2
	1500	11,6-16,0					300	4,9-6,4		
	1550	8,2-13,4					450	3,0-4,2	1425	8,1
	1650	1,4-8,0					600	1,3-2,8		
	1790	0					760	0	-	-

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation	fuel delivery characteristics	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	rev/min
1	2	3	4	5	6
(- 22	93X with 740)				
1400	57,0-59,0	1455-1465		100 72,25-82,25	
				250-180 min ⁻¹	

- 1 mm less control rod travel than col 2

⑥ Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VW 1,5f

2. Edition

En

VE 4/9 F 1500 R 25-3
R 25-3 P
0 460 494 035
0 460 494 036

Over flow temperature 45°C

supersedes 482
company: VW
engine: EA 086

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

-- mm

see VDT-W-460/..

1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,4-3,8 mm		
1.2 Supply pump pressure	1500	5,4-6,0 bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure Full-load delivery with charge-air pressure	1500 --	29,5-30,5 cm³/1000 strokes cm³/1000 strokes		2,5(3,0)
1.4 Idle speed regulation	415	6,0-10,0 cm³/1000 strokes		2,5(3,0)
1.5 Start	100	min. 38,0 cm³/1000 strokes		
1.6 Full-load speed regulation	1550	20,0-24,0 cm³/1000 strokes		
1.7 Load-dependent start of delivery	--	--		

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1500 (2,9-4,3)	
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,4-3,0		
Overflow delivery	n = rev/min cm³/10 s	500 55-138(40-153)		1500 55-138(40-153)
2.3 Fuel deliveries				3. Dimensions for assembly and adjustment mm
Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation
End stop	1610 1550 1500 600	max. 9,0 (19,0-27,0) (27,7-32,3) 18,0-21,0 (16,5-22,5)		K KF MS SVS XK XL
switch-off elect.	400	bei 2,5 V 0		A B
Idle stop	450-550 415	0 (4,0-12,0)		Observations
End stop	400 500	min. 13,5 max. 19,5		
2.4 Solenoid	max cut-in voltage 16V 8V 6V XXX	xxx min. 10V rated voltage 12V.		

Testoil-ISO 4113

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 VMA 2,2a
2. Edition

VE 4/10 F 2100 L 75
0 460 404 024

Over flow temperature 45° C

supersedes 6.82
company: VM-Motori
engine: HR 492 HT

En

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment
see VDT-W-460/..

Pre-stroke setting

-- mm

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1600	6,3-6,7 mm	0,7	
1.2 Supply pump pressure	1600	5,8-6,4 bar (kgf/cm²)	0,7	
1.3 Full-load delivery without charge-air pressure	600	34,0-37,0 cm³/1000 strokes	0	2,5 (3,0)
Full-load delivery with charge-air pressure	1600	47,5-48,5 cm³/1000 strokes	0,7	
1.4 Idle speed regulation	400	15,0-19,0 cm³/1000 strokes	0	2,5 (3,0)
1.5 Start	100	min. 65,0 cm³/1000 strokes	0	
1.6 Full-load speed regulation	2100	41,5-44,5 cm³/1000 strokes	0,7	
1.7 Load-dependent start of delivery	--	--		

2. Test Specifications

Checking values in brackets ()

2.1 Timing device LDA=0,7 bar	n = rev/min mm	1000 1,9-2,7 (1,6-3,0)	1600 (5,8-7,2)	2100 9,3-9,9 (8,9-10,3)
2.2 Supply pump LDA=0,7 bar	n = rev/min bar (kgf/cm²)	400 1,5-2,1		2100 7,5-8,1
Overflow delivery	n = rev/min cm³/10 s	500 55-138 (40-153)		2100 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2450	max. 5,0	0,7		
	2300	24,5-30,5 (23,5-31,5)	0,7	K	3,2-3,4
	2100	(40,7-45,3)	0,7	KF	5,7-5,9
	1600	31,5-34,5 (30,7-35,3)	0	MS	1,4-1,6
	1600	(45,7-50,3)	0,7	SVS	4,4-4,6
	+700	43,0-46,0 (41,5-47,5)	0,3	+ FH	1,8-2,4
	600	(32,5-38,5)	0	XK	20,2-22,2
switch-off	2100	0		B XL	10,0-13,3
idle stop	550-750 400	0 (13,0-21,0)		Observations + Manifold-pressure compensator stroke = 4,2 mm.	
End stop	400	min. 37		Correction at the adjusting nut (46).	
	500	max. 37			
2.4 Solenoid	max. cut-in voltage XXXXXX	XXX min. 10,0 V rated voltage 12V.			

Testoil-ISO 4113

(2) Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4 MB 11,8 e

5. Edition
En

Testoil-ISO 4113

PE 6 P 100 A 720 RS 15

RQ 250/1100 PA 269 R
PA 278 R *

1 - 5 - 3 - 6 - 2 - 4 je 60°

supersedes 11.81

company: Daimler-Benz
engine: OM 355

*278 Functional check of roll-start block: Adjust solenoid until control rod is 1,5...2,5 mm from stop.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,75-2,75)

Port closing at prestroke

2,80-2,90

mm (from BDC) RW 10,5

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	5
1100	13,0	11,85 - 12,05	0,3(0,6)			
	+0,1					
250	7,9-8,1	1,70 - 2,30	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	11	Control rod travel mm
600	15,6-16,4	600	16,0	12,0	1125-1145	250	6,0	100	min.7,5	1100	13,0-13,1
1350	0 - 1			4,0	1195-1230	250		5,9-6,1	250	450	13,2-13,33

Torque-control travel

on flyweight assembly dimension a =

mm

Speed regulation: All 125-1145 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor contrl lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm³/-1000 strokes	rev/min	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
1100	118,5-120,5 (116,5-122,5)		450	450	101,0 - 105,0 99,0 - 107,0	100	140-160

Checking values in brackets

10.82

BOSCHGeschäftsbericht KH Kundendienst Kfz Ausrüstung
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L13

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,8 b 1

3. Edition

En

PES 6 P 120 A 320 RS 417 RQV 300-1150 PA 527 K

Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

supersedes 2.82

company RVI

engine: MIDS 062030
158 kW (215 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8-2,9
(2,75-2,95) mm (from BDC)

Port-closing mark 9.5° camshaft after port
closing of cylinder 1.

Port closing at prestroke

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	8,5-8,6	14,8 - 15,0	0,5(0,9)			
300	4,1-4,3	1,8 - 2,4	0,5(1,2)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
			1a	2a	4	5	6	7	8	11
max.	1200	15,2-17,8	-	-	-	ca. 10	100	min. 5,7	250	0,4-0,7
ca. 58	7,5 4,0 1400	1205-1215 1275-1305 0-1,0				330-345	300	4,1-4,3	550 850 1150	3,6-3,7 5,1-5,2 7,5

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	2b rev/min	4a rev/min	5a cm³/1000 strokes	6 rev/min	5 Control rod travel mm
1150	147,5-149,5 (144,5-152,5)	1205-1215*	750 500	132,0-138,0 (129,0-141,0) 80,0- 86,0 (77,0- 89,0)	100 120,0-140,0	1150 350 750 500 8,5+0,1 7,0+0,4 7,7+0,2 7,2+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

BOSCH

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 6,2 n

2. Edition

En

Testoil-ISO 4113

PE 6 A 90 D 320 RS 2577

RSV 250-750 A 7 B 2125 R

supersedes 12.80
company DAF
engine DD 575

** Set idle-auxiliary spring at 2,0 mm.

See Service Information VDT-I-DAF 004.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,15-2,35)

RW = 9,0 mm;

Port closing at prestroke

2,20-2,30

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	11,0	7,4 - 7,6	0,4(0,55)			
	+0,1					
250	5,9-6,1	0,7 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Port closing difference between control-rod travel

B. Governor Settings

9 mm and max. = 2.5 - 3.5

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Loose	800	0,3-1,0				ca. 22	250	6,0	750	11,0-11,1
	X =	5,0					100	min. 19	700	11,0-11,3
ca. 4	770-780 = 10,0						250	**		
	795-815 = 4,0						260-320 = 2,0			
5	955 = 0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery idle		5a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
750	74,0 - 76,0 (72,0 - 78,0)	760-770*	-	-	100	19,5-21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 11,8 m

1. Edition

En

PE6PT00A720RST5

RSV350-750PT/365R

supersedes
company Daimler-Benz
engine OM 355

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,75-2,95)

mm (from BDC)

RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
730	13,0+0,1	10,6-10,8	0,3(0,6)			
350	7,9-8,1	1,4- 2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	750	0,3-1,0	-	-	-	ca. 17	350	8,0	-	-
	x = 3,25						100	min. 19,5		
ca. 33	12,0	750-760					350	7,9-8,1		
(5)	4,9	750-795					355-415	= 2,0		
	850	0,3-1,7					*	*		

* * Set idle-auxiliary spring at 1.5 - 2.0 mm.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop Test oil temp 40°C (104°F) rev/min	(6) Rotational-speed limitat. Note: changed to ... rev/min	(3a) Fuel delivery characteristics rev/min	Starting fuel delivery Idle rev/min	(5a) Idle stop Control rod travel mm rev/min				
1	2	3	4	5	6	7	8	9
730	106,0-108,0 (104,0-110,0)	750-760 *	-	-	100	140,0-150,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2
10.82

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP Q01/4 SCA 8,0 1
1. Edition

En

PE 6 P 110 A 720 RS 3076

RSV 350-1200 P1/462

supersedes
company Scania
engine D S 8

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,3-3,4
(3,25-3,45) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
900	11,9±0,1	12,1-12,3	0,4(0,8)			
940	4,8-5,0	1,4- 2,0	0,6(0,85)			

Adjust the fuel delivery from each outlet according to the values in □

B. Governor Settings

1 Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca.24	350	4,4	-	-
	X= 4,0						100	min.20,0		
Ca. 62 2a	10,9	1240-1250	-	-	-	ca.24	350	4,8-5,0	-	-
	1450	0,3- 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	6 Rotational-speed limitat		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 cm³/1000 strokes	4a Idle stop Control rod travel mm	
	rev/min	cm³/1000 strokes	Note changed to 3 rev/min	4 rev/min	5 cm³/1000 strokes	6 rev/min			9 mm
900	121,0-123,0 (119,0-125,0)	1240-1250*	-	-	-	100	190,0-240,0 20,0- 21,0 mm RW 14,0-20,0 (11,0-23,0)	-	-
						940			

* 1 mm less control rod travel than col. 2

Checking values in brackets

10.82

BOSCH

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(1) Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 u8

1. Edition

En

PE 6 P 120 A 720 RS 7001 RQV200-1000 PA 612

supersedes
company Scania
engine: DN 11
BUS-Motor

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

* from FD 141: 5,0-5,1
Port closing at prestroke (4,95-5,15) mm (from BDC)

to FD 052: 4,4-4,5 mm
(4,35-4,55)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	11,3+0,1	18,3-18,5	0,5(0,9)			
225	4,0-4,2	0,8-1,2	0,5(0,8)			

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1
1	2	3	2a	4	5	6	4	7	8	9	10
max.	1000	15,2-17,8		-	-	-	ca.10	100	min.5,6	150	0,5-0,8
ca. 59	10,3 4,0 1250	1040-1050 1120-1150 0-1,0					260-365 3a	225	4,0-4,2	430 720 1000	3,0-3,5 5,0-5,2 7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	2b	2a	5a	5
1000	183,0-185,0 (180,0-188,0)	1040-1050*	600	164,0-168,0 (161,0-171,0)	100 mm RW 250,0-300,0 20,0- 21,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 DAF 6,2 m

4 • Edition

En

PE 6 A 85 D 320 RS 2546 RSV 250-750 A 7 B 2125 R

supersedes
company DAF
engine: DD 575 DF/615 DT

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,1 - 2,3)

mm (from BDC)

RW = 9 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,1+0,1	6,0 - 6,2	0,3(0,45)			
250	8,4-8,6	0,8 - 1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Port closing difference between control-rod travel 9
and max. = 3,0-4,0°.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
des-serré	800	0,3 - 1,0	-	-	-	ca. 16	250	8,5	750	12,1+0,1
	x = 4,5								700	12,1+0,3
5a.40	11,1	770-780					250	**		
	4,0	795-815					260-320=2,0mm			
	995	0,3-1,7								

Set idle-speed auxiliary spring at 2,0 mm control-rod travel,
then 1/2 turn back.
The numbers denote the sequence of the tests.

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle		5a Idle stop	
Test oil temp. 40°C (104°F)	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
rev/min	2	3	4	5	6	7	8	9
750	60,5 - 62,5 (58,5 - 64,5)	770-780*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.32

A Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 o 1

3. Edition

En

PES6A90D410RS2293

RSV575-1250A1B618L

supersedes 9.82
 company: Daimler-Benz
 engine: OM 352
 88 kW (120 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
 (2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1230	10,5+0,1	6,1-6,2	0,3(0,45)			
575	6,4-6,6	1,1-1,7	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [].

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0 X=5,0	-	-	-	ca.28	575	5,5	-	-
Ca. 58 S	9,5 4,0 1250	1250-1260 1275-1295 0,3-1,7					100 580-610=2,0 **	min.19,0 650 max.1,0		

** Set idle-speed auxiliary spring at 2,0 mm control-rod travel,
 ** then 1/2 turn back.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a) Fuel delivery characteristics		Starting fuel delivery Idle		⑤a) Idle stop	
Test oil temp 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
	1	3	4	5	6	7	8	9
1230	61,0-62,0 (59,0-64,0)	1250-1260*	-	-	100	71,0-81,0 14,7- 15,1mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 s 4

1. Edition

En

PES6A90D410RS2293

RSV 350-1400A0B1080DL

supersedes

company: Daimler-Benz

engine: OM 352

92 kW (125 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25

(2,10-2,30)

mm (from BDC)

Port closing at prestroke

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	9,7-9,8	6,3-6,4	0,3(0,45)			
350	7,4-7,6	1,2-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
loose	800	0,3-1,0 X=6,0	-	-	-	ca. 23	350	7,0	1400	9,7-9,8
ca. 68 ⑤	8,7 - 4,0 1600	1440-1450 1510-1540 0,3-1,7					100 350 510-570=2,0	min. 19,5 7,4-7,5 2,0	600	9,8+0,2

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a) Fuel delivery characteristics		Starting fuel delivery Idle		⑤a) Idle stop	
Test oil temp. 40°C (104°F) rev/min	cm ³ /1000 strokes	Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1400	63,0-64,0 (61,0-66,0)	1440-1450*	600	51,0-53,0 (49,0-55,0)	100	78,0-88,0 15,1- 15,5 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 12,8 b 2

1. Edition

En

Testoil-ISO 4113

PE 8 P 100 A 320 LS 810 RQV 300-1250 PA 227 R.

supersedes
company Daimler Benz
engine: OM 402

8 - 7 - 2 - 6 - 3 - 5 - 4 - 1 \pm 0,50

0 - 45 - 90 - 135 - 180 - 225 - 270 - 315 (\pm 0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,35-3,55)
3,40-3,50

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	10,3-10,4	10,0 - 10,2	0,3 (0,6)			
300	7,4-7,6	1,7 - 2,3	0,3 (0,5)			
600	---	C, Sp. 4-5	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1250	15,2-17,8	-	-	-	ca. 12	100	min. 9,0	300	0,4-1,5
	1450	0 - 1					300	7,4-7,6	800	4,4-4,8
ca. 66	9,3	1290-1300					630-690 = 2,0	1250		8,2
	4,0	1330-1360								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	5a	6	7	8	9
1250	100,0-102,0 (98,0-104,0)	1290-1300 *	600	78,0-83,0 (76,0-85,0)		100	110,0-130,0		
							100-220 (80-240)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.80

BOSCH

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